



RW Series

Mobile Printer

Maintenance Manual

***for RW 420 Printer and RW 220 Printer;
RW 420 Vehicle Cradle***



Zebra Technologies International, LLC

333 Corporate Woods Parkway
Vernon Hills, Illinois 60061-3109 USA

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WARNING: EXPOSURE TO RADIO FREQUENCY RADIATION ON SOME MODELS. TO CONFORM TO FCC RF EXPOSURE REQUIREMENTS THIS DEVICE SHALL BE USED IN ACCORDANCE WITH THE OPERATING CONDITIONS AND INSTRUCTIONS LISTED IN THIS UNIT'S USER'S MANUAL.

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Section 1: RW Series Introduction

Description

The Zebra RW Mobile Printer series are low-cost, portable, direct thermal printers. They can be carried by the operator using a shoulder strap or belt clip, sit at a work space, or be mounted in a vehicle using an optional Docking Cradle. Each model is powered by a Li-ion battery pack which makes it particularly useful in environments where AC power is not readily available. The RW series of mobile printers deliver traditional Zebra reliability in a transportable printer for the mobile work environment.

Operating Modes

- **Internal Media Mode:** Media is supplied from a roll mounted in the printer's media compartment..
- **External Media Mode (RW 420 only):** Media is supplied from an external source, typically a bin containing fan-fold media, or a larger roll of media that exceeds the capacity of the RW 420's media compartment. Media is fed through a slot in the bottom of the printer's lower housing. The printer's configurator must have the external media option selected to make use of this feature. (Refer to pg. 3-3 for more information on the RW 420 configurator.)

Printing Technology

The RW series printers utilize direct thermal printing wherein a substrate, typically paper, is coated with a chemical that changes to a dark color upon exposure to heat over a period of time to form an image.

Communications

Communications between the RW series printers and a host terminal can occur in three basic ways:

- By a cable between the printer and its host terminal using either RS-232C serial or USB protocols.
- By means of a Bluetooth® short range radio frequency link.
- By means of a wireless LAN (Local Area Network) per 802.11 specifications. Certain RW models can be configured with both a Bluetooth and an 802.11b/g radio.

User Guide

Use of this manual presumes a familiarity with the RW series printers. Complete information regarding the operation, features and specifications of the RW series printers can be found in the RW Series User Guide which can be found on-line at www.zebra.com/manuals.

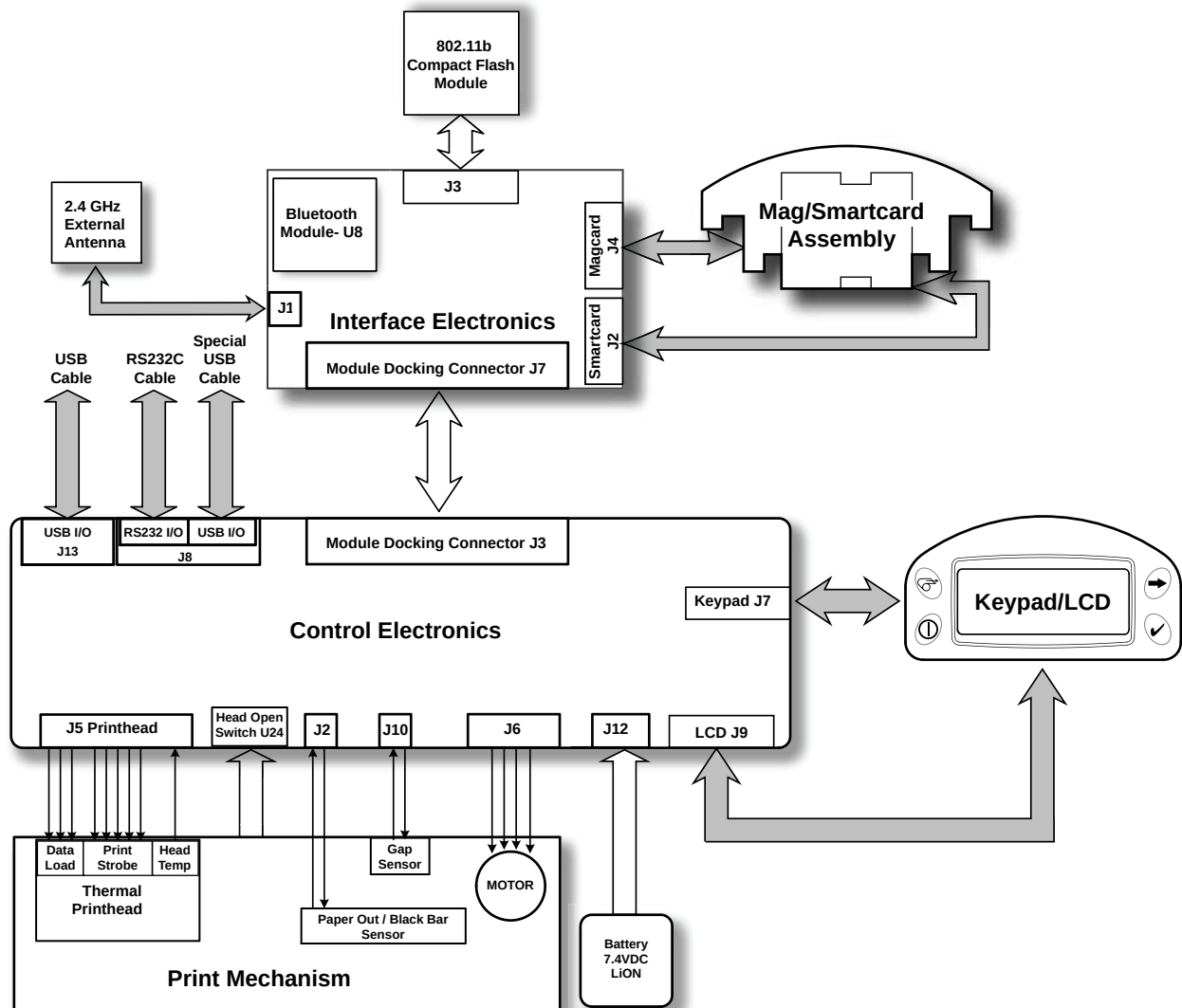
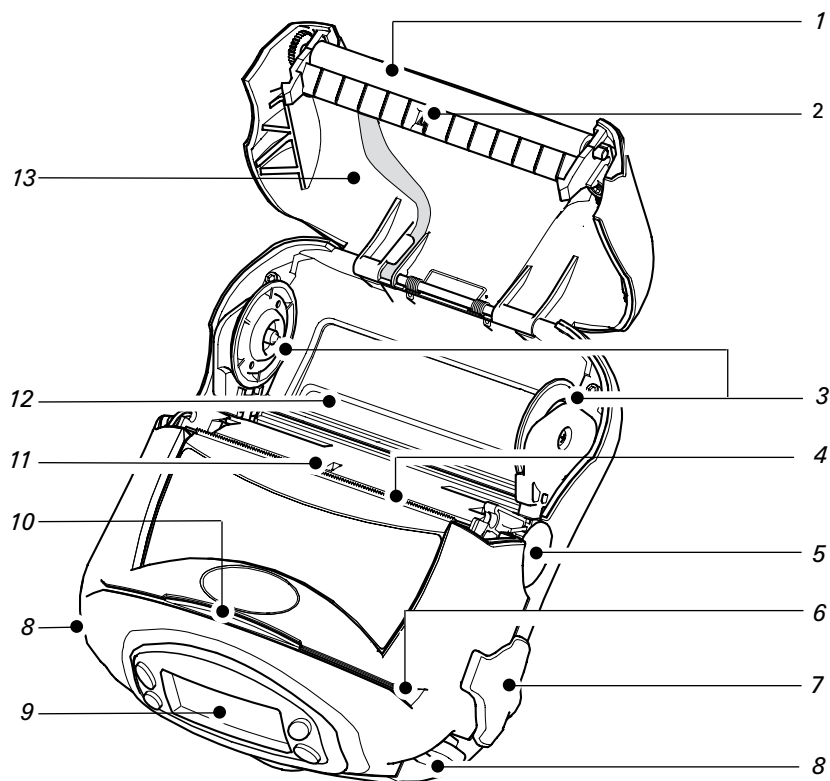


FIGURE 1- RW SERIES SYSTEM BLOCK DIAGRAM



1. *Platen Roller*
2. *Bar Sensor*
3. *Media Support Disks*
4. *Printhead*
5. *Latch Release Button*
6. *Magnetic Stripe Reader (MSR) Slot*
7. *Communications Port Door*
8. *"D" Rings*
9. *Control Panel*
10. *Smart Card Slot*
11. *Gap Sensor*
12. *Bottom Media Feed Slot (external media models only)*
13. *Media Cover*

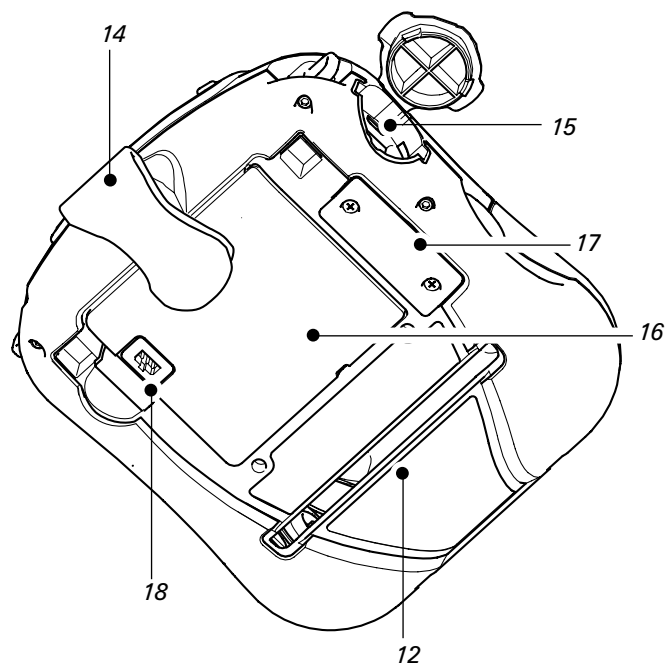
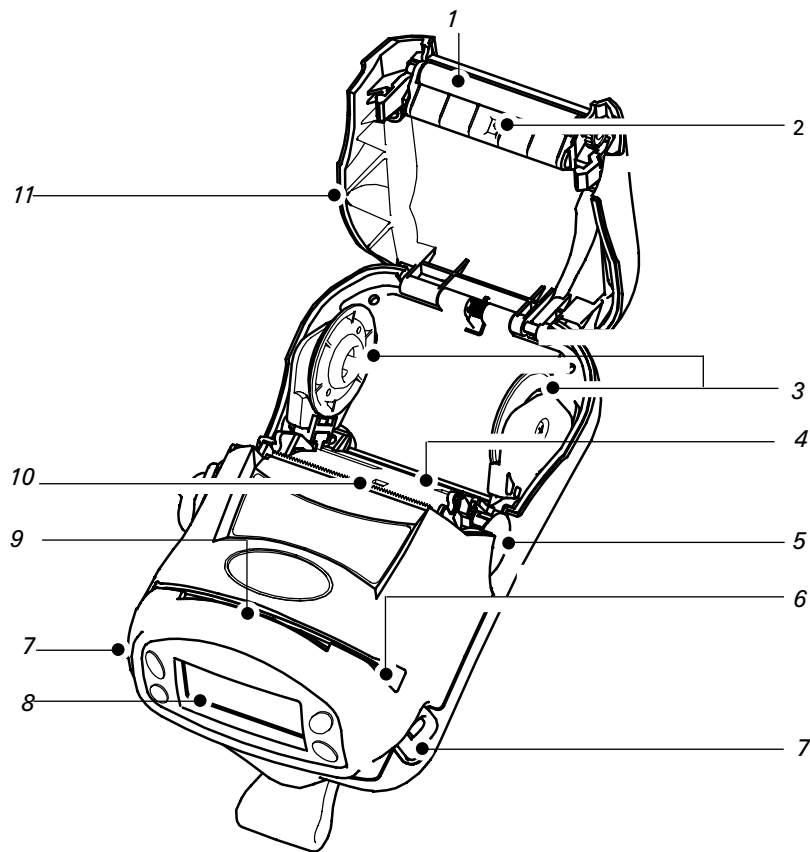


FIGURE 2 - RW 420 OVERVIEW



- 1. Platen Roller
- 2. Bar Sensor
- 3. Media Support Disks
- 4. Printhead
- 5. Latch Release Button
- 6. Magnetic Stripe Reader (MSR) Slot
- 7. "D" Rings
- 8. Control Panel
- 9. Smart Card Slot
- 10. Gap Sensor
- 11. Media Cover

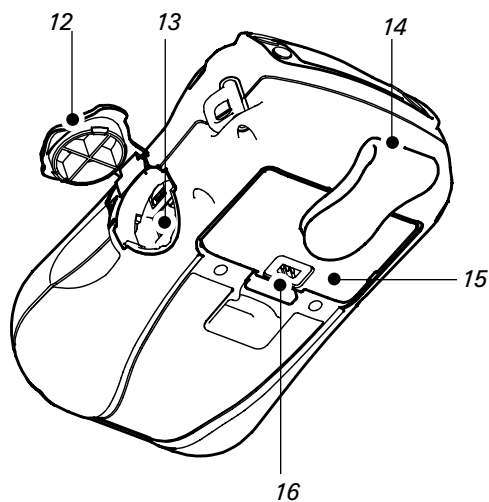


FIGURE 3 - RW 220 OVERVIEW

Diagnostic Tools

This section of the Printer Repair Manual contains instructions for using the various diagnostic tools available from Zebra and instructions on contacting technical support services offered by Zebra.

Following sections contains explanations on the products configuration structure, troubleshooting guide for isolating common printer problems, illustrated parts breakdowns for specific models and specialized component replacement procedures.

Diagnostic Label Printout

The printer can create a configuration label which exercises all of the printhead's thermal elements and create a detailed report of the printer's settings and any special files that may be loaded into memory.

This Diagnostic label can be used as an initial tool to diagnose such basic printer problems as missing printhead elements, missing or incorrect application files or incorrect settings.

Label Vista™

Label Vista is a Windows™ based label design program, which also offers comprehensive diagnostic and utility routines. The ability to create, edit and print files and perform diagnostic tasks makes Label Vista an extremely powerful tool for maintaining the Zebra line of portable printers.

Label Vista may be downloaded from: <http://www.zebra.com>.

Unit Test and Calibration Software

Zebra authorized service organizations have access to powerful test and calibration software which allows them to perform more advanced procedures. These procedures are identified by the following message:



The following procedure can only be performed by Zebra authorized service organizations using approved equipment and software.

If you do not have this approval, do not attempt to perform these procedures. If they are performed improperly or incompletely, the printer will not function properly.

Factory Technical Support

Refer to the "Factory Repair & Parts Ordering Procedure" topic in this Section for information on contacting technical support, ordering parts or returning your printer for repair.

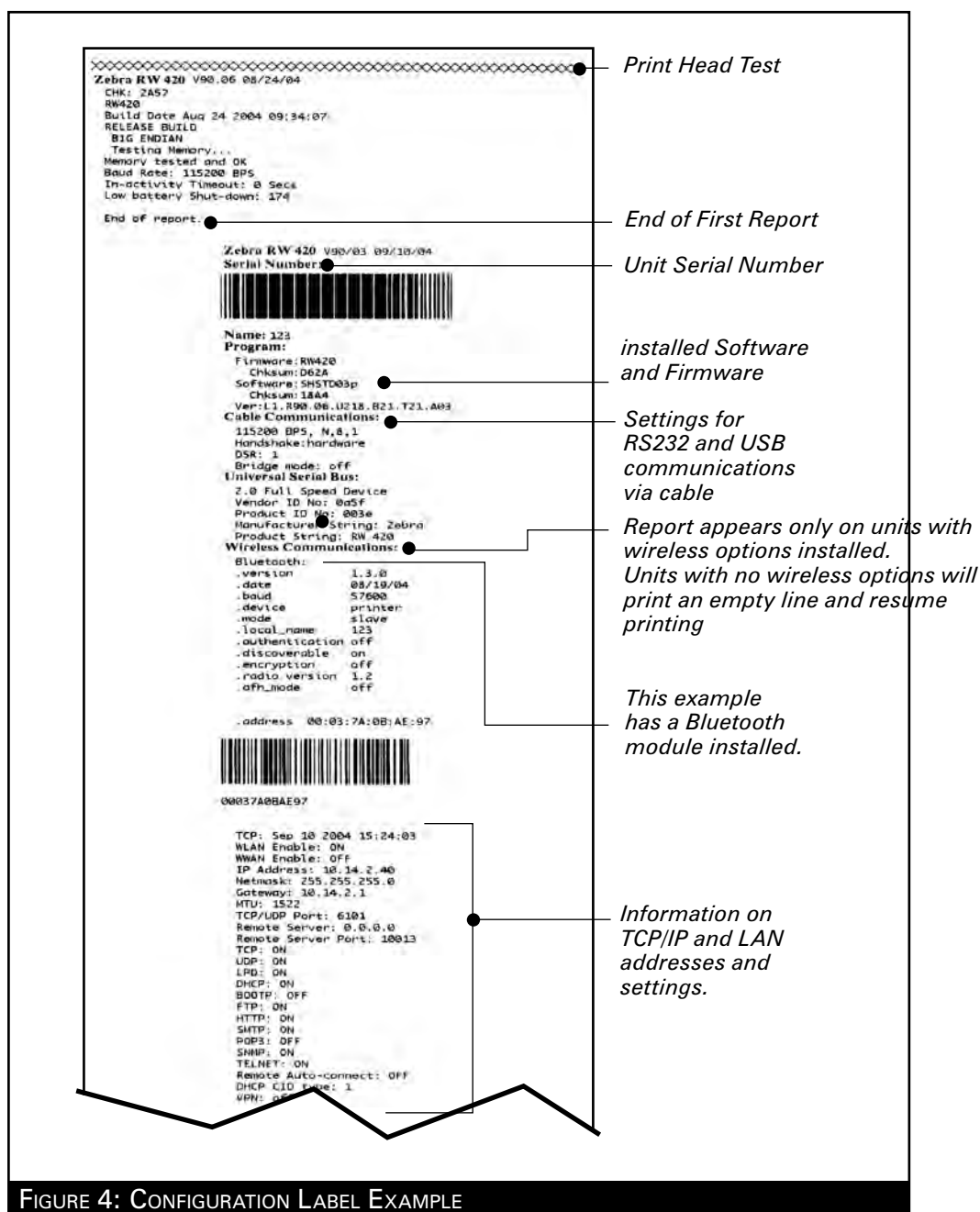
Printing a Diagnostic Label

Creating a Configuration Label

1. Turn the printer off. Load the media compartment with journal media (media with no black bars printed on the back)
2. Press and hold the Feed Button.
3. Press and release the Power button and keep the Feed button pressed. When printing starts, release the Feed button.

The printer will generate a configuration label similar to the following examples:

Sample Configuration Label



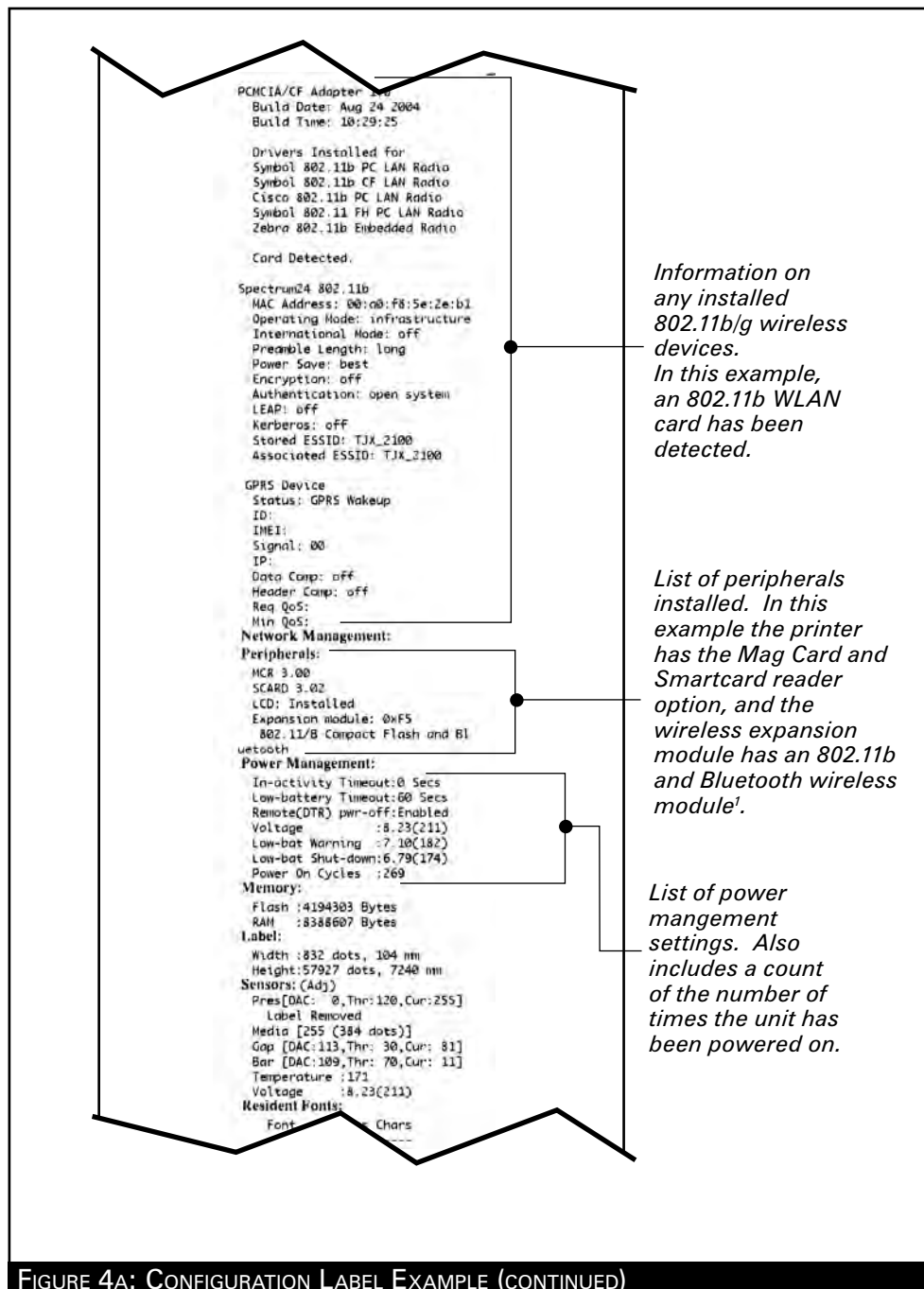
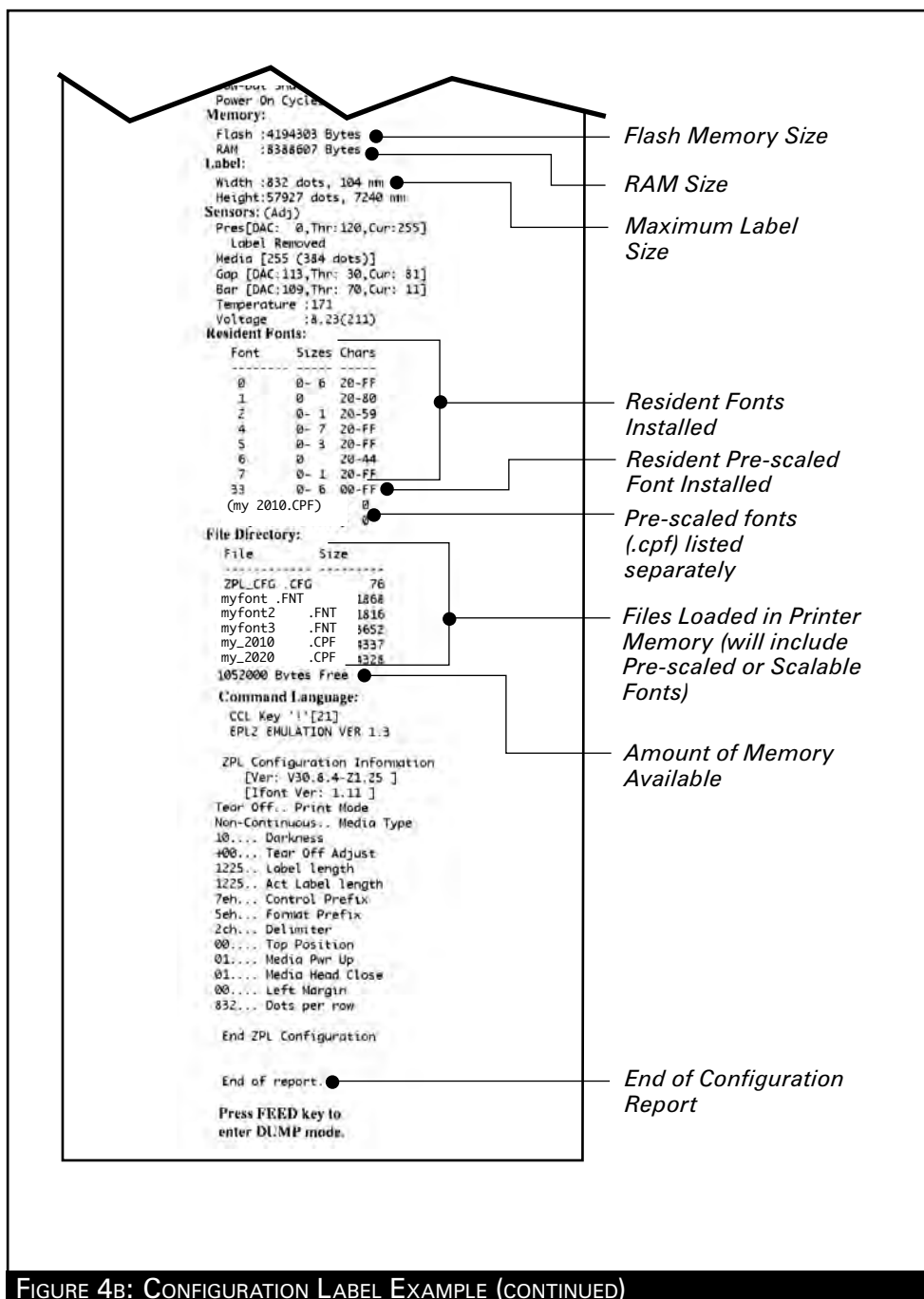


FIGURE 4A: CONFIGURATION LABEL EXAMPLE (CONTINUED)



Introduction to Label Vista™

Label Vista is a program running under the Windows™ environment that allows users to design labels which can be printed on the full range of Zebra mobile printers.

Label Vista also provides a powerful set of diagnostics tools which use familiar Windows “point and click” routines. These tools can be reached under the **Printer** selection on the Label Vista menu bar. It is recommended that the Label Vista documentation package be consulted for a more detailed description of the printer diagnostics available in Label Vista.

Equipment Required For Label Vista

1. An IBM-PC Compatible with the following minimum configuration:
 - Pentium CPU
 - 256 MB RAM
 - 1.44 MB Floppy Drive
 - 1 GB Hard Drive
 - CD-ROM drive
 - SVGA 14” monitor and SVGA card
 - 2 Serial Ports, 1 Parallel Port
 - A USB port
 - Windows 95/98 or NT
2. Serial Interface Cable part number BL17205-2 (or a Zebra approved equivalent), or a USB interface cable part number AT17010-1.
3. Digital Multimeter (Fluke 77 or similar) w/ minimum impedance >100 KΩ
4. Spare batteries, charger and test media specific to the printer. Refer to the table in the “Tools and Supplies” topic in Section 2 of this manual.

Starting Label Vista

1. Plug the 9 pin “D”-sub connector from the serial interface cable into a serial communications port (COM1 or COM2) on your computer. If you are using USB communications, plug the USB cable into the port on your PC
2. Plug the other end of the interface cable into either the serial I/O port of the printer. or the USB port directly above it.
3. Start the Label Vista program by either clicking on the Label Vista shortcut on your desk top, or using the “Start” button.
4. Use Label Vista’s extensive built-in Help topics for instructions on using its many design, editing and diagnostic features.

RW Series Unit Test & Calibration

Equipment Required

1. A computer with the following minimum configuration:
 - Pentium CPU
 - 256 MB RAM
 - 1.44 MB Floppy Drive
 - 1 GB Hard Drive
 - CD-ROM drive
 - SVGA 14 in. monitor and SVGA card
 - 2 Serial Ports
 - USB Port
 - Windows 95/9, NT or 2000
 - Unit Test Software version 3.3 or higher installed with the "euro" configuration.
2. A bar code scanner, using either RS232 (serial) keyboard "wedge" or USB communications. (Example: Symbol Model LS1908 series)
3. Serial Interface Cable part number AK18350-1 (or a Zebra approved equivalent).
4. Spare batteries, charger and test media specific to the printer. Refer to the table in the "Tools and Supplies" topic in Section 2 of this manual.
5. Sensor calibration switches: p/n AA15417-1 (gray) and p/n AA15417-2 (white)
These switches are included in Spares Kit AN16753-029C.

Running The Software

CAUTION: DO NOT disconnect the communications cable at any time during the Unit Test procedure unless prompted to do so by the software!



Certain replacement procedures in this manual will require running the test procedure to verify a repair. It is recommended that you perform the entire unit test sequence for these procedures to verify all printer functions after the replacement.

To Start

- Launch the Unit Test Application.
- Plug the Serial Interface Cable into the printer's communication port.
- Follow the on-screen instructions.

Section 2: Replacement Procedures

Tools and Supplies

Make use of the following tools and supplies for maintaining the printer and installing the repair kits:

Hand Tools

- #0 or #1 Phillips Head Screw Driver
- 3/32" hex driver

Supplies

- Cleaning Pen (10 pack), p/n AN11209-1
- Isopropyl alcohol
- SuperLube™ lubricant p/n 82325 SL
- Spares Kit AN16753-029, consisting of:
 - Eye Sensor Calibration Swatch p/n AA15417-1
 - Gap Sensor Calibration Swatch p/n AA15417-2
- Media, Batteries, and Chargers for RW series printers per table below:

Mobile Printer Model #	Journal Media (for Life Test)	Label Media (for Gap test)	Label Media	Battery Replacement Kit	SingleCharger / Quad Charger
RW 420	LD-D4FN6K	LD-D4YL5K	LD-R4LFSP	AK17463-005	AT17696-x/ AC18177-6
RW 220				AK18026-002	

Storage and Handling

Handling

The use of an ESD wrist strap at a properly grounded workstation is required when handling printed circuit boards or other sensitive electronic components. The ESD strap prevents any electrostatic damage to occur while assembling these components. The use of the ESD strap will be noted in the applicable instructions.



This symbol indicates that the operator must wear a properly grounded ESD strap to perform the repair procedure.

Storage

Replacement kits which are sensitive to ESD damage are supplied in static resistant packaging. Always keep these parts in their original packaging until they are to be installed.

Replacement Kit RK17393-001- RW 420 Media Cover

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-001 Media Cover Kit in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

- 3/32" Hex Driver
- #0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

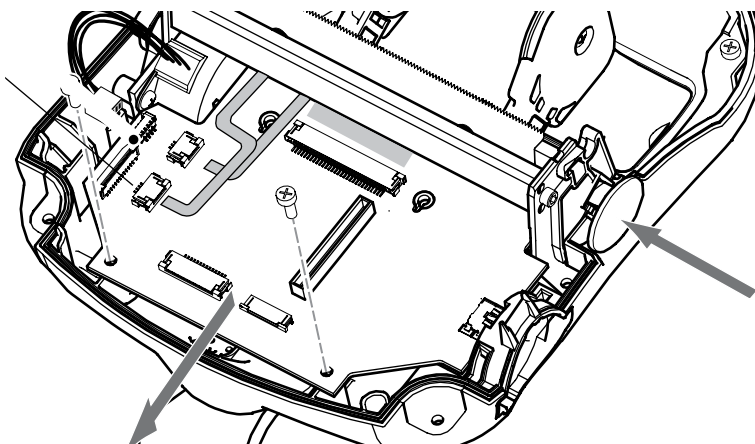
Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Removing the Media Cover

- 1 Turn the printer off and remove the battery pack.
- 2 Press the latch release button and open the Media Cover. Remove any media from the printer.
- 3 Remove the Upper Housing, referring to procedure for RK1793-008/RK18280-1. Pivot the Upper Housing away from the Printer. You may elect to disconnect the LCD and Keypad flex circuits from the CPU Board for ease of handling the Printer.

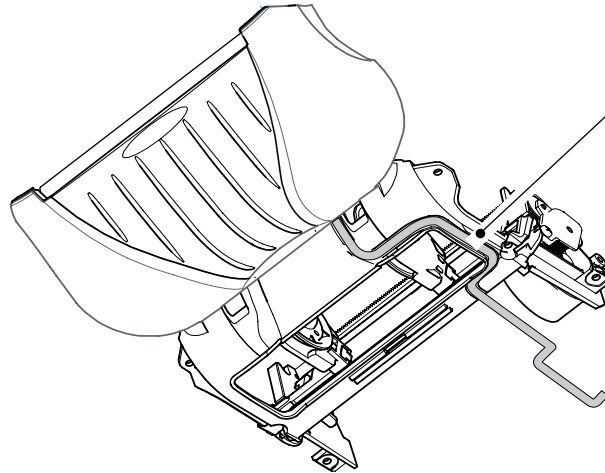
Unplug the Bar
Sense Cable
from J2



4. Remove the two screws securing the CPU Board to the Lower Housing.
5. Unlock the connector J2 and remove the Bar Sense Cable from the CPU Board.
6. Remove the Printer Frame from the Lower Housing. (Refer to the procedure for RK17393-007 for more details.) Carefully pivot the printer frame out of the Lower Housing and lift the Media Cover clear of the Lower Housing .



Avoid putting excess strain on the remaining cables connected to the CPU Board.



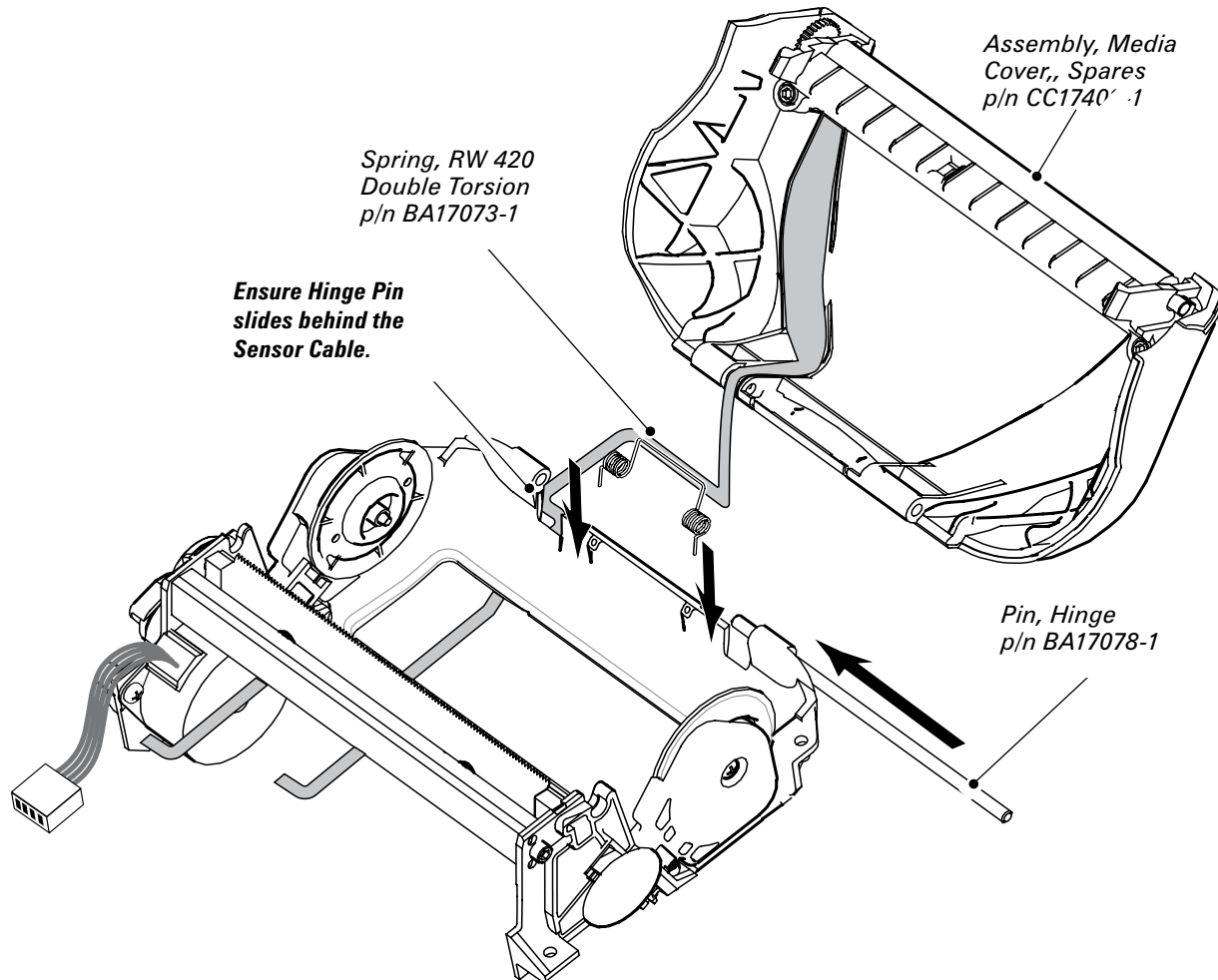
7. Remove the Platen and Gear from the Media Cover Assembly. (Refer to the procedure for AK17393-002 for more details)
8. Remove the Bar Sense Cable from the Printer Frame. Carefully peel the Bar Sense Cable off the bottom of the Printer Frame.

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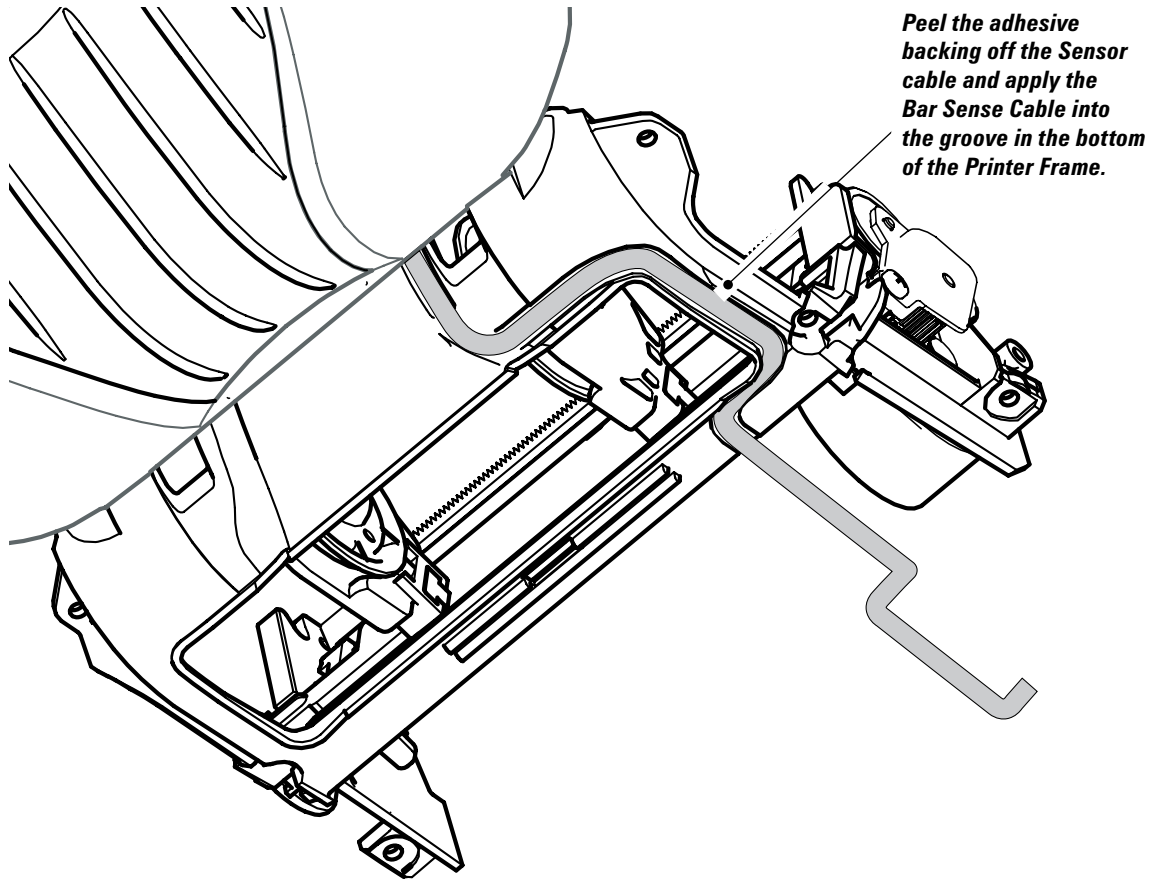
9. Remove the Media Cover. Using a 3/32" hex driver, push the Hinge Pin out of the Printer Frame, and then lift the Media Cover from the Printer Frame.

Installing the Media Cover

1. Insert the Double Torsion Spring into the Lower Cover.
2. Feed the Bar Sense Cable through the slot in the Printer Frame as shown.
3. Align the Media Cover with the Printer Frame and slide the Hinge Pin through the Media Cover, the Double Torsion Spring and Printer Frame. Center the pin.



4. Ensure that the hinge pin is behind the Bar Sense Cable.
5. Peel the backing off the bar sensor cable and adhere it in the groove on the bottom of the Printer Frame.



6. Install the Printer Frame in the Lower Housing, again referring to procedure for RK17393-007 if necessary. Avoid putting excess strain on the remaining cables connected to the CPU Board.
7. Plug the Bar Sensor Cable into J2 (PAPER) on the CPU Board and lock the connector.
8. Re-install or, if necessary, replace the Platen and Gear Assembly (refer to the procedure for AK17393-002)
9. Install the Upper Housing, ensuring that you have re-inserted the LCD and Keypad flex circuits. Also ensure you have re-installed the D-Rings between the Upper and Lower Housings.
10. Reinstall the battery
11. Calibrate the Sensors.



The calibration procedure can only be performed by certified personnel using special equipment and software.

Using the gray and white swatches, follow the on-screen instructions on the unit test and set-up software to properly calibrate the sensors. It is recommended that the complete unit test procedure be performed whenever a sensor assembly has been replaced.

Accessory Kits AK17393-002 & AK17393-028 RW 420 Platen/Gear

Installation Instruction

This kit includes the parts and documentation necessary to install the AK17393-002 Platen/Gear Kit or AK17393-028 Linerless Platen/Gear Kit in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



Caution • The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Replacing the Platen Assembly

Remove the Old Platen Assembly

1. Remove and retain the two screws holding the Holder, Platen to the Media Cover.
2. Carefully rotate the Holder, Platen towards the interior of the printer until it is free from the media cover.

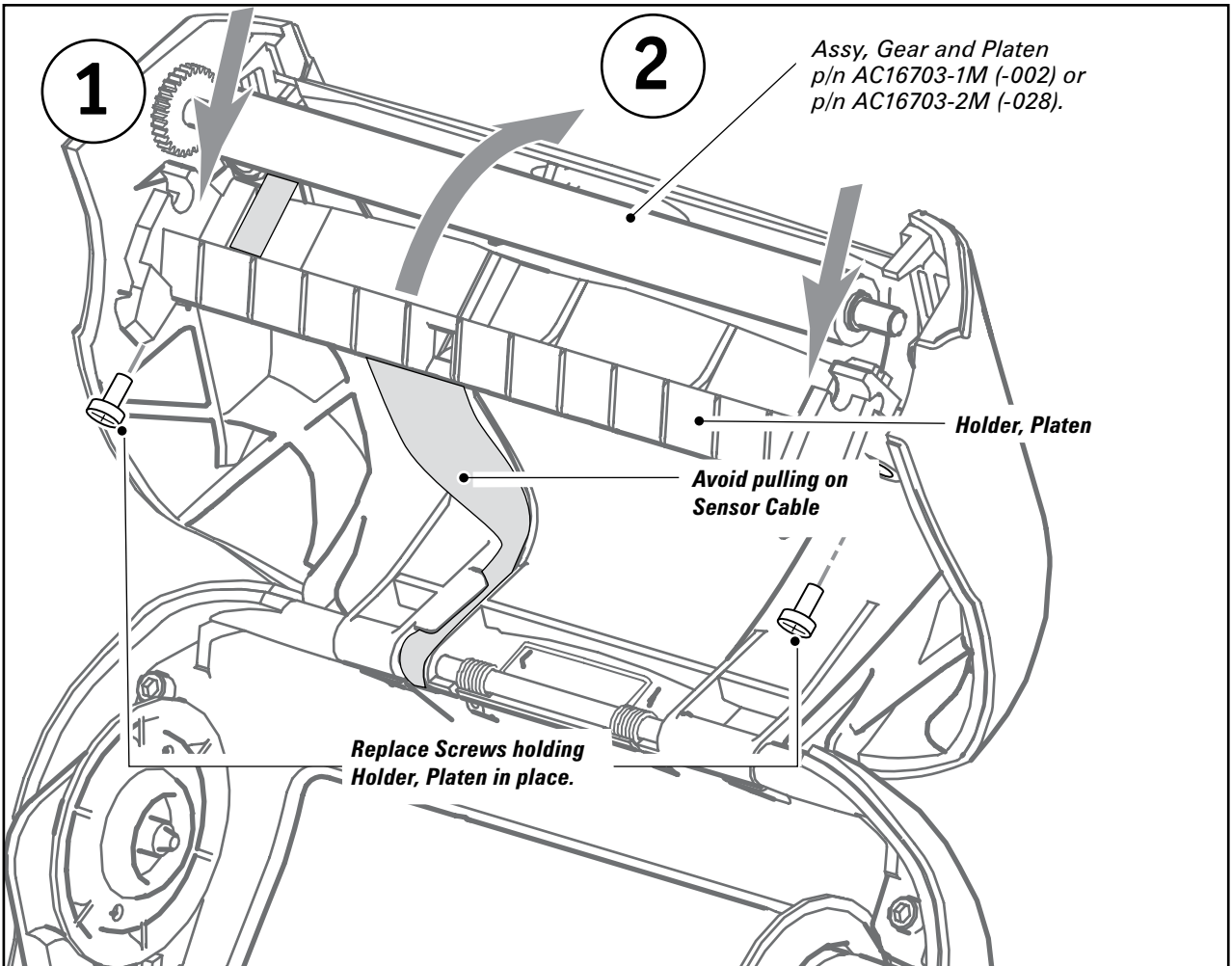


Avoid putting strain on the sensor cable which is adhered to the inside of the Holder, Platen. Do not exert excessive force on the Holder, Platen when it is removed from the Media Cover.

Remove the Platen Assembly from the Holder, Platen.

Install the New Platen Assembly

1. Install the new Platen Assembly into the Holder, Platen, noting the location of the Gear at "1".
2. Rotate the Holder, Platen back into the Media Cover until it snaps into place as shown at "2". Ensure that the new Platen Assembly spins freely.
3. Secure the Holder, Platen to the Media Cover with the (2) retained Screws.



continued on next page

Replacement Kit RK17393-003; RK18471-01 RW 420 Media Guide Assembly

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-003 or RK18471-01 Media Guide Kit in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Removing the Media Assembly

1. Turn the printer off and remove the battery pack.
2. Remove the Upper Housing, referring to procedure for RK18280-1. Pivot the Upper Housing away from the Printer. You may elect to disconnect the LCD and Keypad flex circuits from the CPU Board for ease of handling the Printer.
3. Unplug the following cables from the CPU Board: J2 (Bar Sensor), J10 (Gap Sensor). Unplug the Printhead Cable (J5) from the CPU board. You may also elect to unplug the Motor Cable from J6.
4. Remove the two screws securing the CPU Board to the Lower Housing.
5. Remove the (4) Screws holding the Printer Frame and Media Cover to the Lower Housing. Retain the Screws
6. Tilt the Printer Frame towards the back of the unit. While it is not necessary, you may elect to remove the Printer Frame and Media Cover assembly from the Lower Housing.
7. Remove and retain the (2) Screws securing the Media Assembly to the Printer.
8. Remove the Media Assembly:

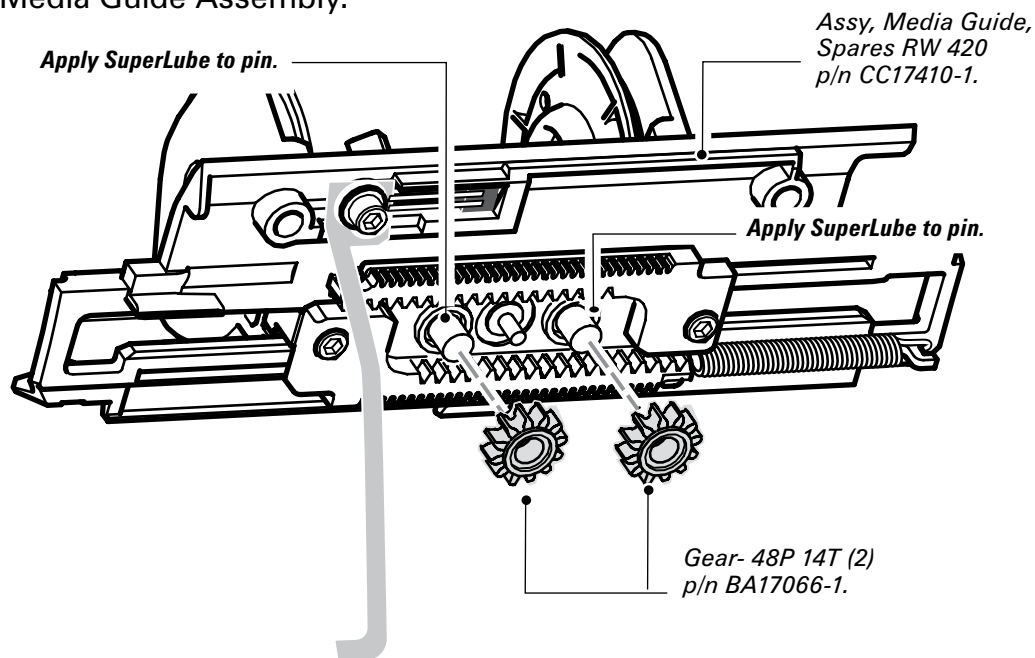


Use care when working around the Printhead. The edges of the tear bar are very sharp!

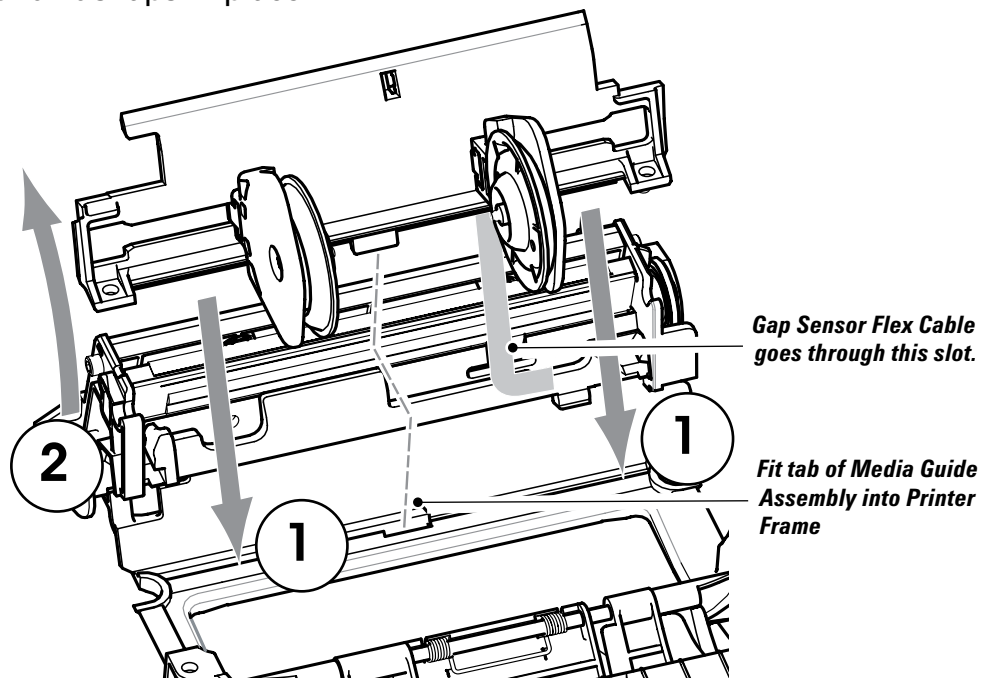
Rock the Media Assembly towards the back of the printer and then lift it up and away from the Printer Frame. **RK17393-003 only:** Ensure the two Gears assembled to the Media Assembly are removed as well.

Installing the Media Assembly

1. **RK17393-003 only:** Apply a sparing amount of SuperLube to the two pins on the Media Assembly where the Gears are assembled. Install the (2) Gears on the Media Guide Assembly.

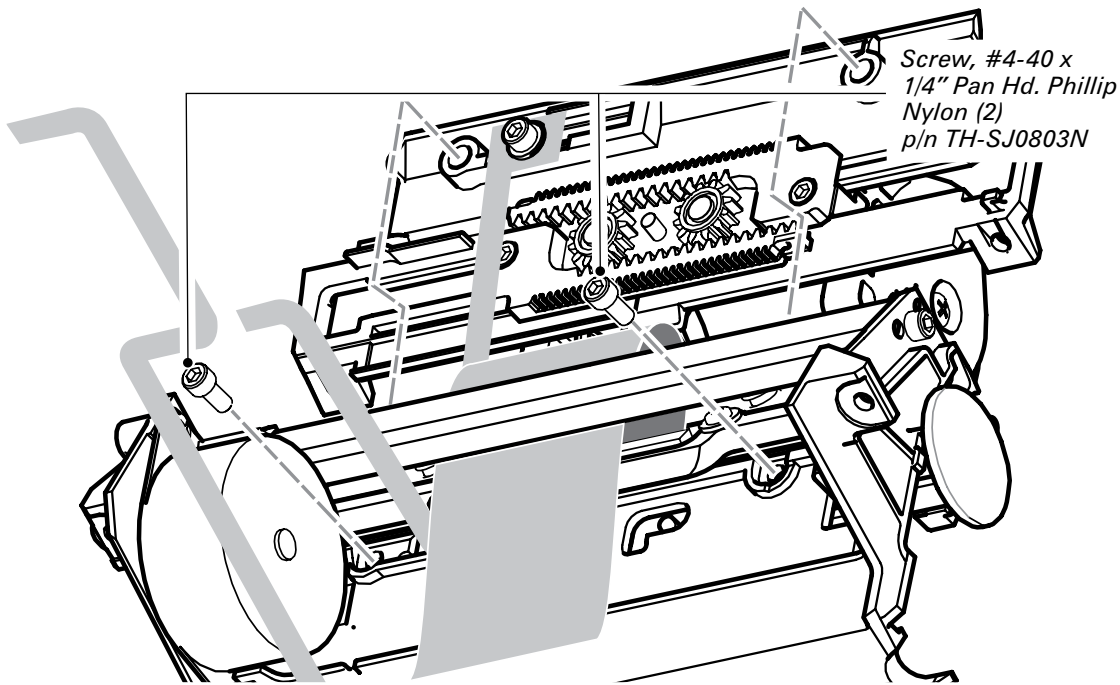


2. **All Repair Kits:** Slide the Media Guide Assembly into the Printer Frame as shown at "1" below. Note that the tab on the bottom of the Media Assembly fits into the slot on the bottom of the Printer Frame. Dress the Gap Sensor flex cable through the Printer Frame
3. Rock the Media Guide Assembly back towards the Printer Frame as shown at "2" until it snaps in place.



continued on next page

4. Secure the Media Assembly to the Printer Frame with (2) Screws.



5. Reinstall the Printer Frame to the Lower Housing. Refer to procedure RK17393-007 for more details.
6. Plug in the Printhead, Bar Sensor and the Gap Sensor Cable to the CPU Board per the table below. If you unplugged the Motor cable, plug it into J6 at this time.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

7. Install the Upper Housing. Refer to RK17393-008 /RK18280-1 for more details. Ensure that the "D" Rings or optional hand strap components are installed.
8. Install the battery.
9. Re-Calibrate the Sensors.



The calibration procedure can only be performed by certified personnel using special equipment and software.

Using the gray and white swatches, follow the on-screen instructions on the unit test and set-up software to properly calibrate the sensors. It is recommended that the complete unit test procedure be performed whenever a sensor assembly has been replaced.

Replacement Kit RK17393-005- RW 420 Printhead

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-005 Printhead Kit in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Preparation

1. Turn the printer off and remove the battery pack.
2. Remove the Upper Housing. Refer to Procedure RK1793-008/RK18280-1 for more details. It is not necessary to unplug the Keypad or the LCD from the CPU Board.
3. Unplug the Printhead, Gap and Bar Sensor Cables from the CPU Board.
4. Remove the Mounting Screws from the CPU Board. Pull the CPU Board away from the Printer to allow access to the Printhead connector.

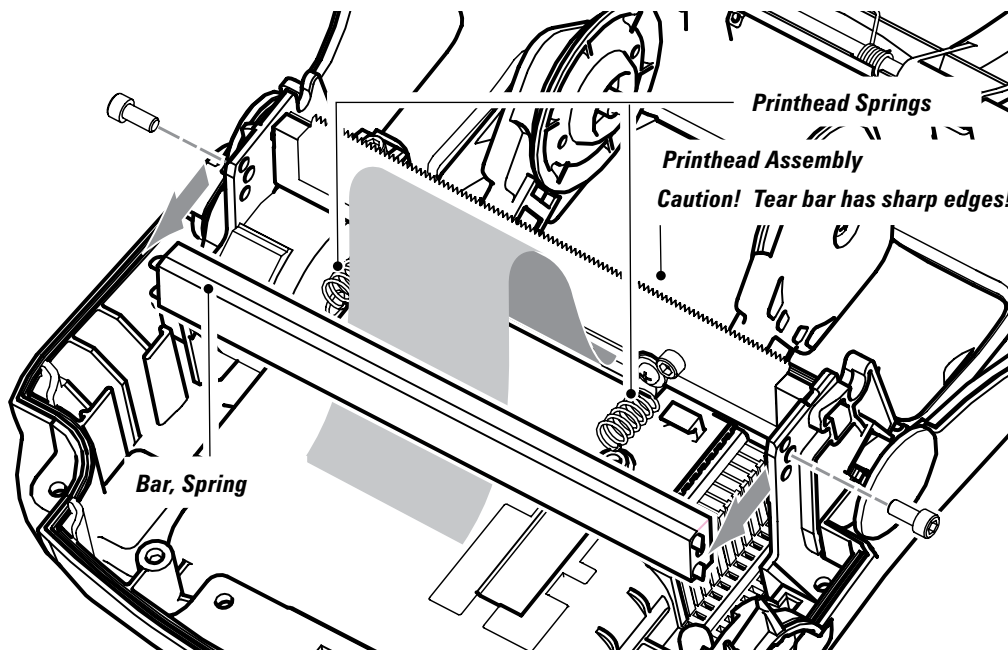
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Removing the Printhead



Note: Use care when handling the Printhead Assembly. The edges of the tear bar are sharp!

- 1 Remove the Bar, Spring from the Printer Frame. Remove and retain the (2) Screws securing the Bar, Spring, and Flex the sides of the Printer Frame enough to allow the Bar, Spring to be removed.
2. Remove the (2) Printhead Springs.
3. Remove the Printhead out of the Printer Frame. Flex one side of the Printer frame, and then pull the pivot point of the printhead out from the Printer Frame.

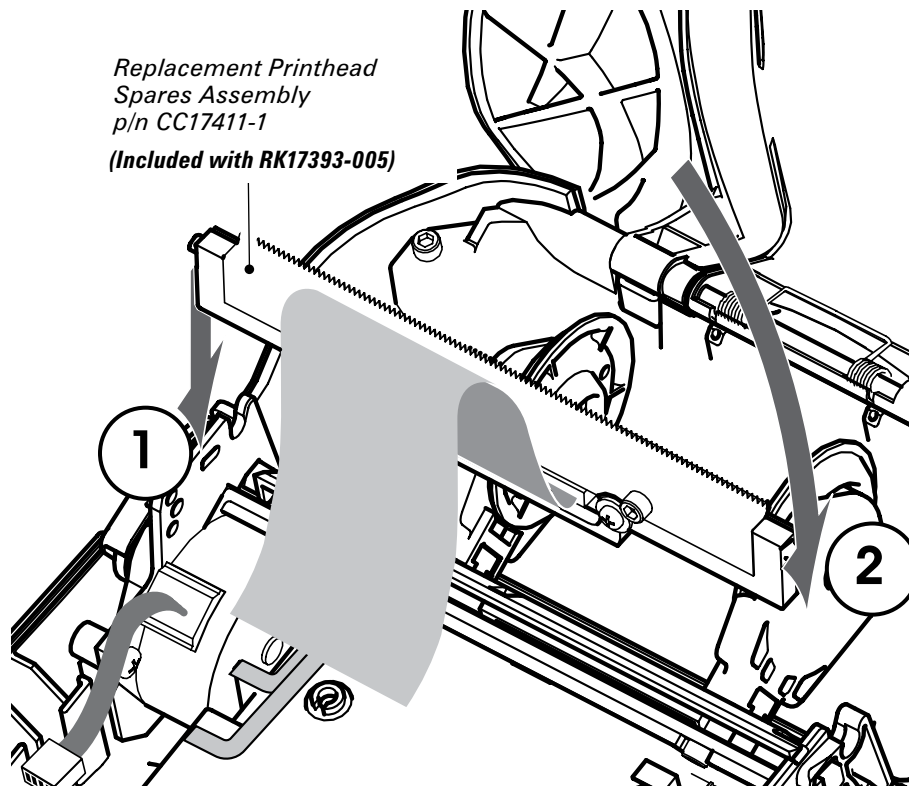


Installing the Printhead



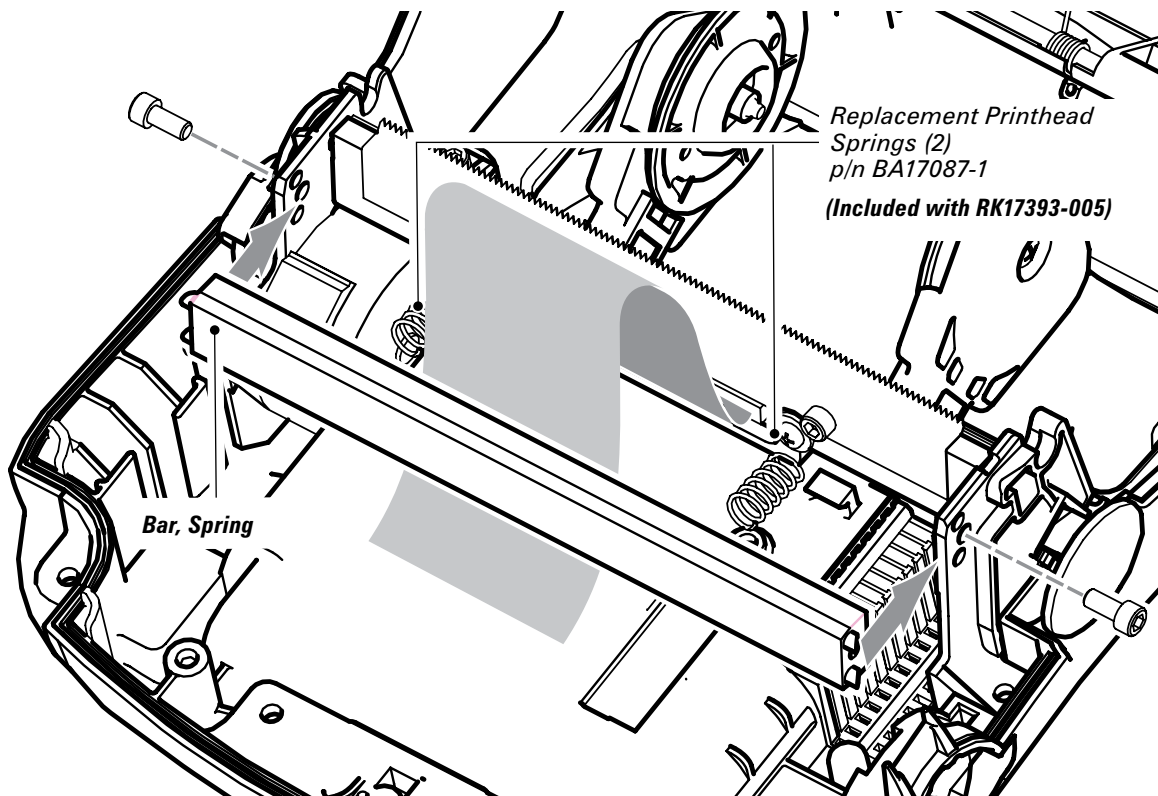
Note: Use care when handling the Printhead Assembly. The edges of the tear bar are sharp! Avoid getting your fingers on the glass surface of the printhead. Always clean the printhead after installation to remove any oils or debris that may have accumulated during installation.

1. Install the Printhead Assembly. Insert one pivot point of the printhead into the slot on the Printer Frame Assembly as shown at "1" below. Rotate the printhead so that it snaps into the slot on the other side of the Printer Frame as shown at "2".
2. Install the (2) Springs, Printhead supplied with the repair kit to the Bar, Spring.
3. Re-assemble the Bar, Spring to the Printer Frame. Ensure that the Printhead Springs are seated over the heads of the screws securing the tear bar to the printhead



continued on next page

- 4 Plug in the Printhead, Bar Sensor and the Gap Sensor Cable to the CPU Board per the table below. If you unplugged the Motor cable, plug it into J6 at this time.



CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

5. Re-secure the CPU Board. Refer to Procedure RK17393-020 for more details.
6. Install the Upper Housing Assembly. Refer to Procedure RK17393-008 / RK18280-1 for more details. Also ensure you have re-installed the D-Rings between the Upper and Lower Housings.
7. Install the Battery Pack and media and perform a two-key reset to verify that the Printhead has been properly installed.
8. Perform the Unit Test procedure. Perform a complete unit test to ensure that the sensor calibrations are still correct.



The calibration procedure can only be performed by certified personnel using special equipment and software.

Replacement Kit RK17393-006- RW 420 Motor

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-006 Motor Kit, RW 420 in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Preparation

1. Turn the printer off and remove the battery pack.
2. Remove the Upper Housing. Refer to Procedure RK1793-008/RK18280-1 for more details. It is not necessary to unplug the Keypad or the LCD from the CPU Board.
3. Unplug the Printhead, Gap and Bar Sensor Cables from the CPU Board.
4. Remove the Mounting Screws from the CPU Board. Push in the latch release button and pull the CPU Board away from the Printer to allow access to the Printhead connector.



Refer to the procedure for RK17393-020 for more details on removing the CPU Board)

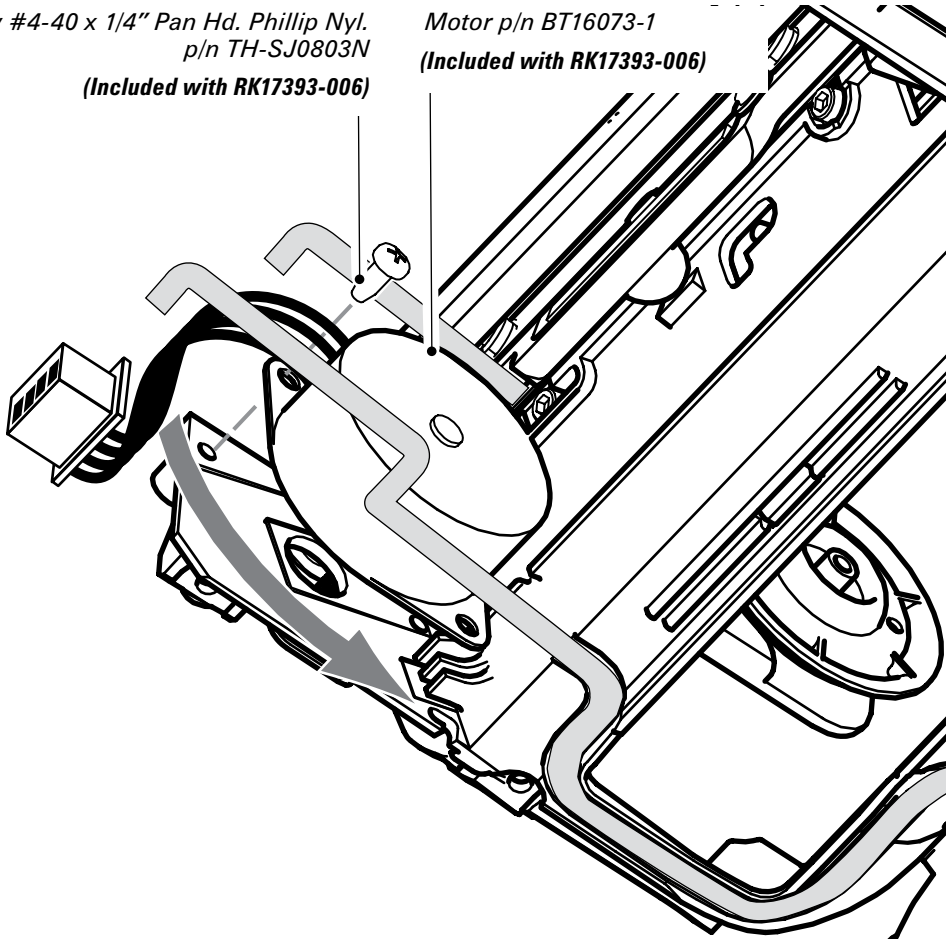
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Removing the Motor

1. Remove the Printer Frame and Media Cover Assembly from the Lower Housing.
2. Unplug the Motor connector (J6) from the CPU Board
3. Remove the Motor from the Printer Frame by removing its mounting Screw and twisting the motor mounting ears away from the frame as shown.

*Screw #4-40 x 1/4" Pan Hd. Phillip Nyl.
p/n TH-SJ0803N
(Included with RK17393-006)*

*Motor p/n BT16073-1
(Included with RK17393-006)*



Installing the Replacement Motor

1. Insert the Motor's pinion gear through the hole in the Printer Frame. Mesh it with the gears on the side of the Printer frame. Rotate the motor into place on the Printer Frame as shown and secure it with the Screw supplied with the kit.
2. Reassemble the Printer Frame and Media Cover back into the Lower Housing.
3. Secure the Printer Frame to the Lower Housing with (4) Screws as described by RK17393-007. Ensure that none of the sensor cables or the motor cables are pinched between the Printer Assembly and the Bottom Cover Prior to assembly.

4. Using the Procedure RK17393-020 and the table below as a guide, plug in the cables from the Printer to the CPU Board. Ensure all ZIF connectors for the flat flex cables are locked.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

5. Re-secure the CPU Board. Refer to Procedure RK17393-020 for more details.
6. Assemble the Upper Housing to the Printer, and secure it with the retained hardware. At this time either the “D” rings, or the Carrying strap which was supplied with the printer should be reassembled.
7. Reinstall the Battery Pack and perform a two-key reset to verify that the Printer has been properly reassembled.



It is always recommended you perform a complete unit test to verify proper operation of all the printer features.

8. Perform the Unit Test procedure. Perform a complete unit test to ensure that the sensor calibrations are still correct, and the motor is operating correctly.

Replacement Kit RK17393-007- RW 420 Printer Frame

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-007 Printer Frame Kit, RW 420 in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove any media installed in the Printer

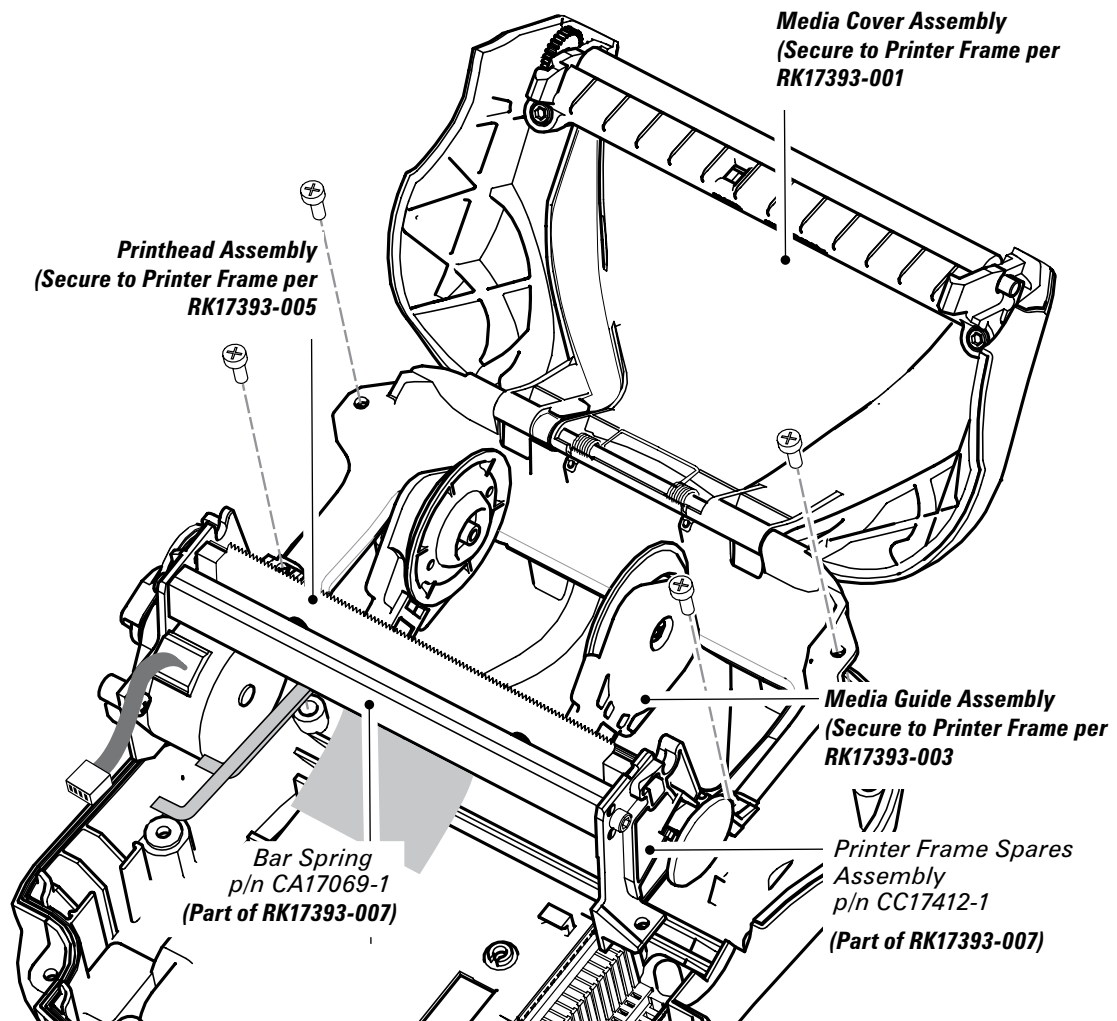
Removing the Printer Frame

1. Remove the Upper Housing. Refer to Procedure RK17393-008/RK18280-1 for more details.
2. Remove the CPU Board. Refer to Procedure RK17393-020 for more details.
3. Remove the (4) Screws that secure the Printer Frame to the Lower Housing and remove the Printer Frame and Media Cover.
4. Remove and retain the following from the Printer Frame:
 - Media Cover Assembly (ref. RK17393-001)
 - Media Guide Assembly (ref. RK17393-003)
 - Printhead Assembly (ref. RK17393-005)
 - Motor.

Install The New Printer Frame Assembly

1. Assemble the Media Assembly onto the new Printer Frame: Refer to RK17393-003 for more details on installing the Media Assembly.
2. Assemble the Media Cover Assembly to the Printer Frame. Follow the procedure for reinstalling the Media Cover Assembly per RK17393-001.
 - Ensure the Hinge Pin passes behind the Sensor cable.
 - Press the Sensor cable firmly into its channel in the bottom of the Printer Frame.

3. Install the Printhead Assembly: Follow the procedure for installing the Printhead Assembly in RK17393-005. Note that a new Bar, Spring is included as part of the Printer Frame Replacement Kit.
4. Install the Printer Frame and Media Cover assembly into the Lower Cover. Ensure that the Motor Cable and Bar Sense Cable will not be pinched between the Printer Frame and the Lower Cover.



5. Using Procedure RK17393-020 and the table below as a guide, plug in the cables from the Printer to the CPU Board. Ensure all ZIF connectors for the flat flex cables are locked.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINTHEAD CABLE	J5

6. Re-secure the CPU Board. Refer to Procedure RK17393-020 for more details.
7. Reassemble the Upper Cover and Module Housing: Re-install the Upper Housing per RK17393-008. When re-installing the Upper Housing ensure that the proper Corner Attachment Kit (ref. RK17393-023) is also re-installed.
8. Install the Battery and turn the unit on. Verify that all indicator lights turn on properly.
9. Verify proper operation of the printer by performing a two-key reset.



If you have also replaced the Media Guide Assembly and/or the Printhead Assembly during this procedure you must perform a complete unit test to calibrate the new sensors include with these assemblies.

It is always recommended you perform a complete unit test to verify proper operation of all the printer features.

Replacement Kits RK17393-008 & RK18280-1 RW 420 Keypad and Housing

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-008 & RK18280-1 Keypad and Housing Kits, RW 420 in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



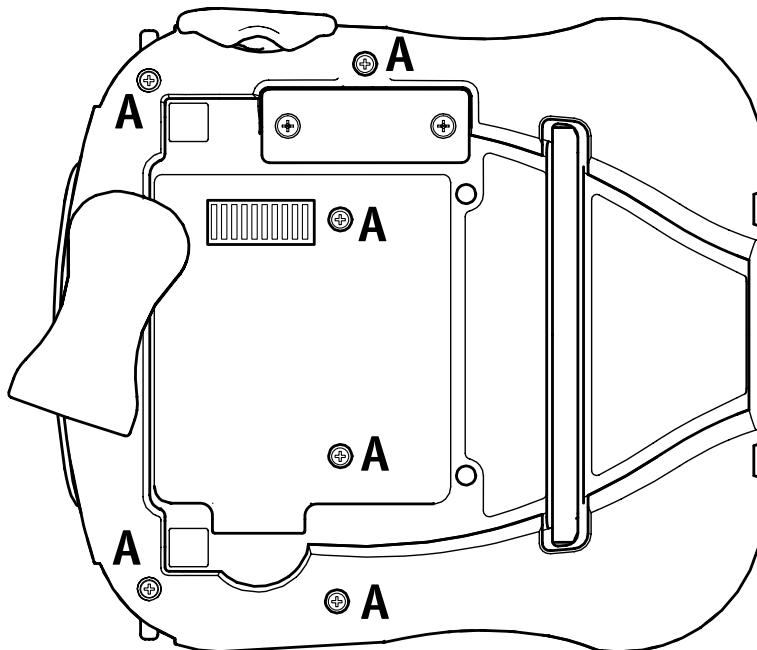
This installation must be performed only by a qualified service technician.

Unless otherwise specified:

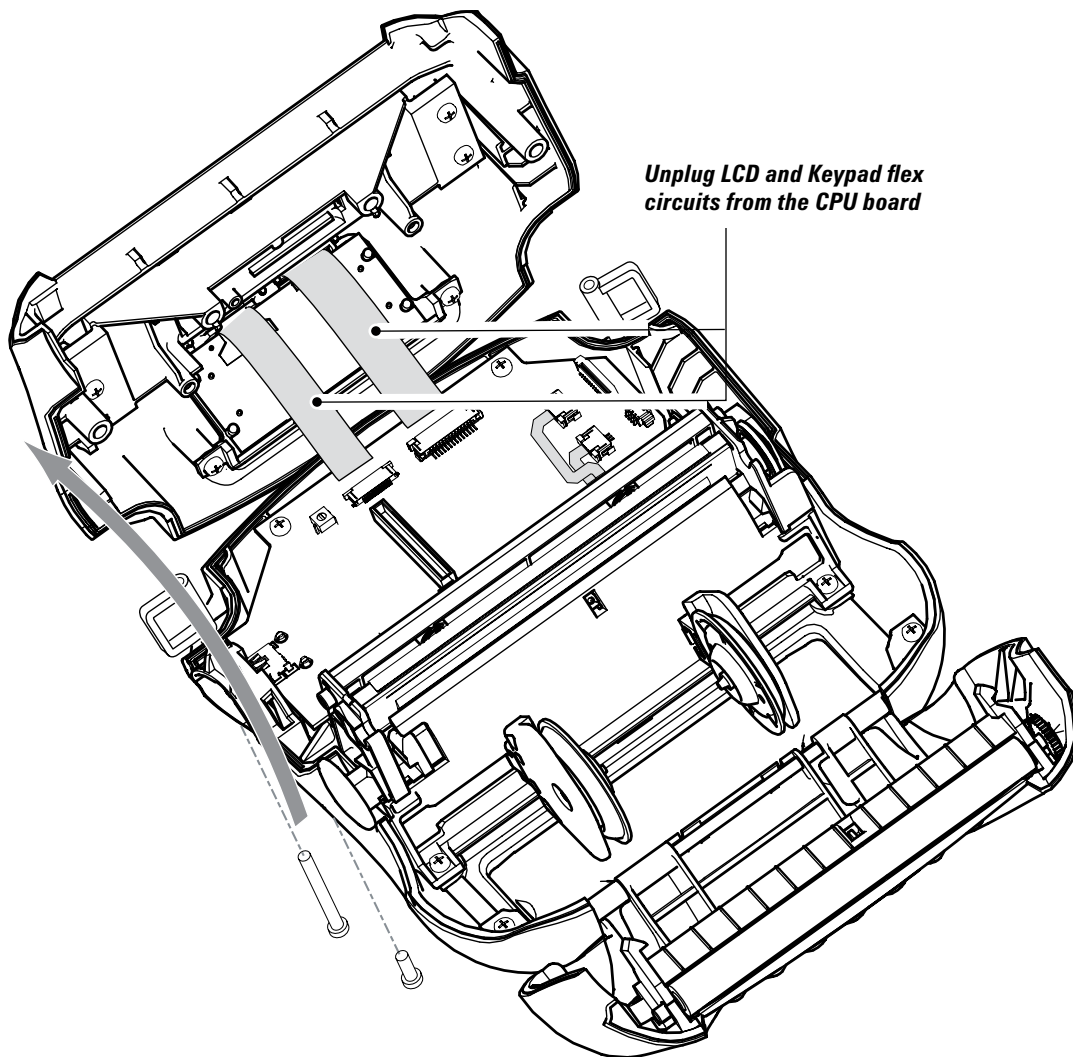
- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Remove the Upper Housing

1. Remove and retain the (6) screws at locations marked "A" securing the Keypad and Housing to the printer.
2. Remove and retain the D-rings or the sleeves and carrying strap captured between the Keypad and Housing and the lower housing.

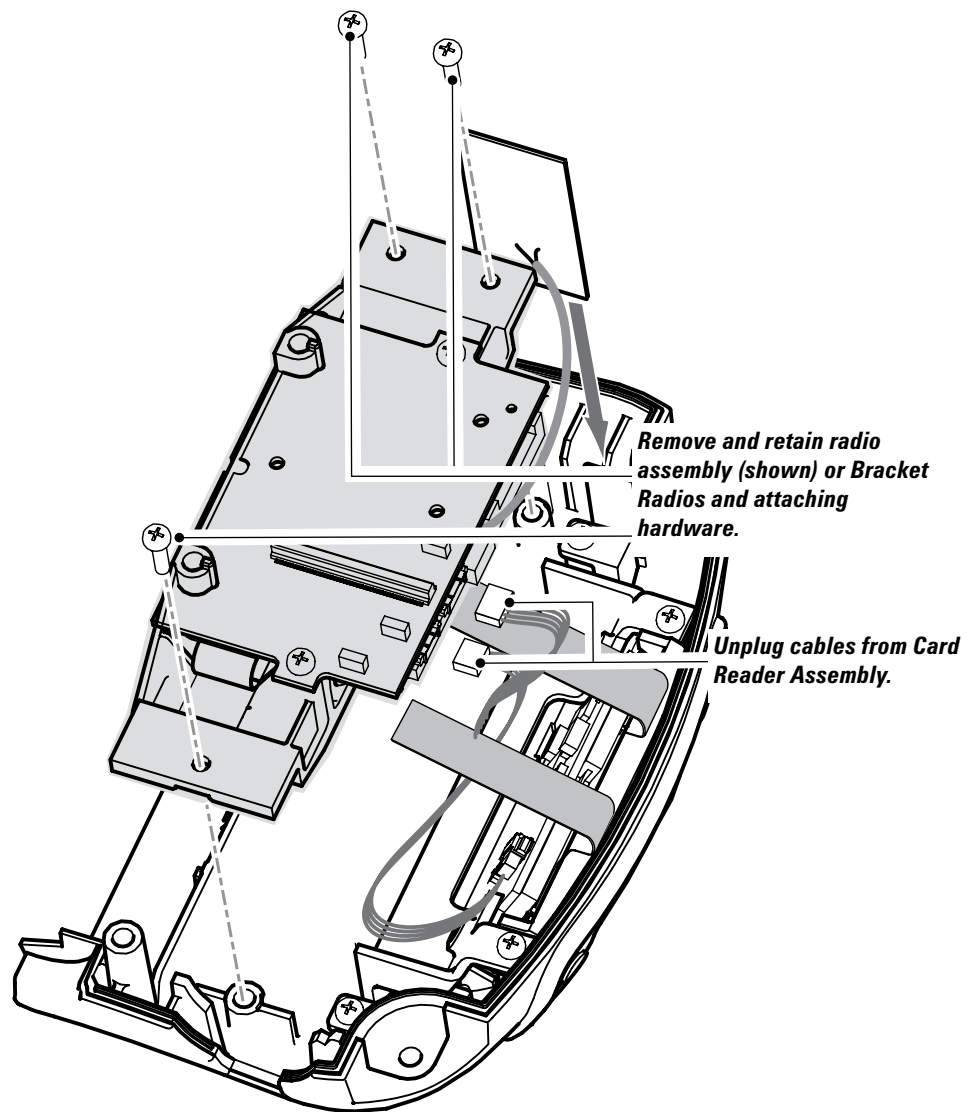


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3. Pivot the Keypad and Housing forward.
4. Unplug the Keypad and LCD flex cables from the CPU board.
5. If your printer has a Bluetooth radio, detach the antenna card from the lower housing.

Separate the Assemblies



1. Remove and retain the Bracket, Radios by removing the (3) screws securing the Bracket, Radios to the Card Reader Assembly. Retain the Screws.

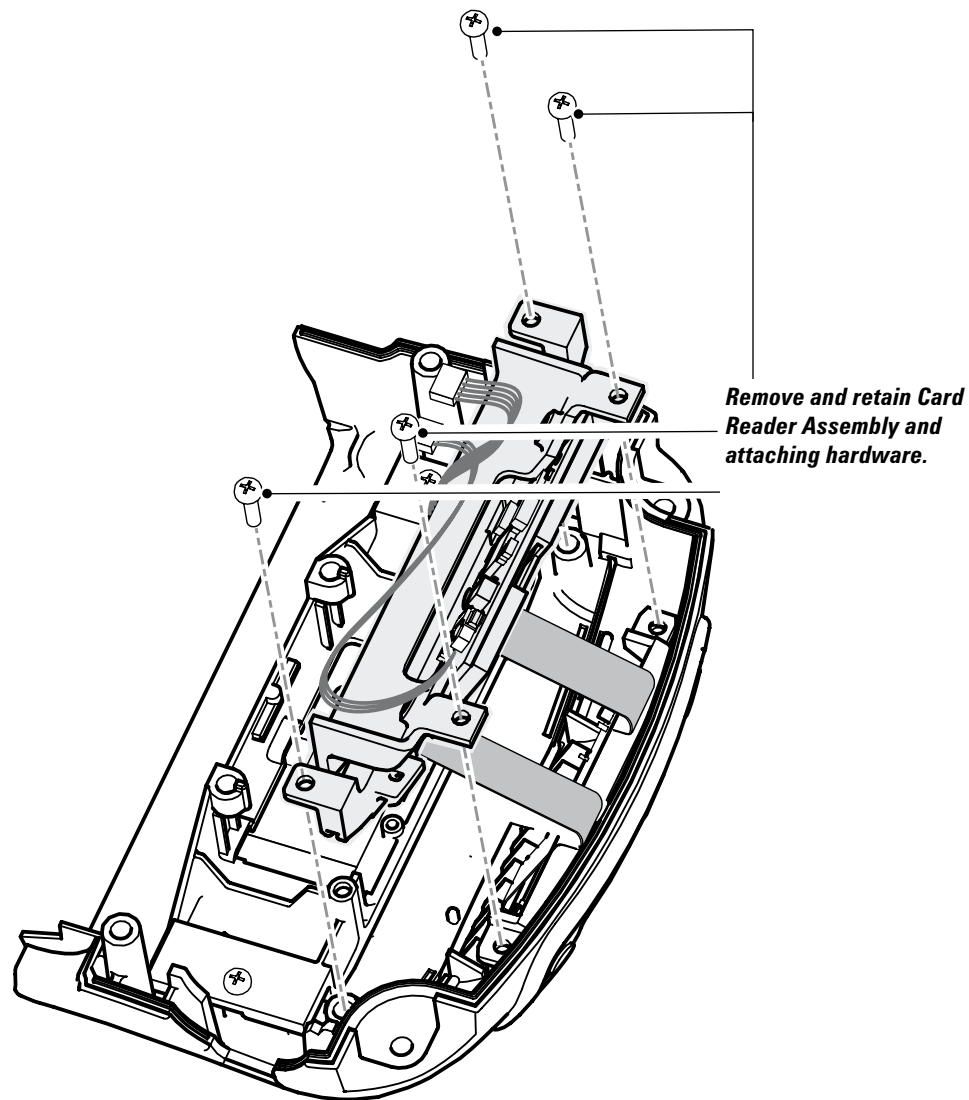


Note that some printers will have radio and interface PCBs assembled to the bracket, and some printers will not, depending on the printer's configuration. The disassembly and re-assembly process for the upper housing is the same for all options.

If your printer has a Card Reader Assembly installed: unplug the two cables from the Card Reader Assembly to the Legacy PCB

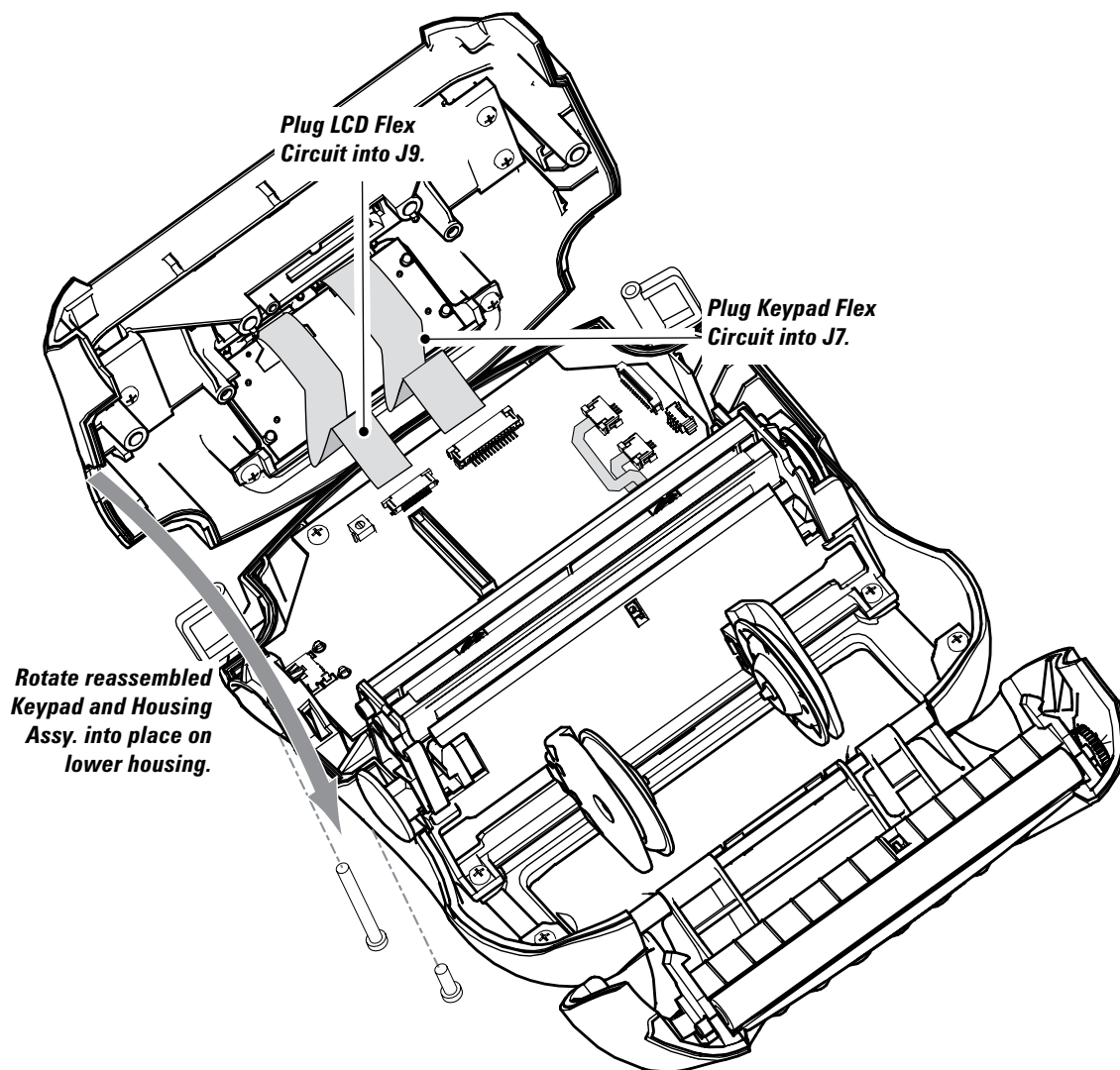
2. If your printer has a Card Reader Assembly installed, remove the (4) screws holding the assembly in place and remove the Card Reader Assembly. Refer to the procedure for RK18241-1 for more details.

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Installing the New Upper Housing

1. If you removed a Card Reader from the printer, re-install it in the new Keypad and Housing. Arrange the Keypad and LCD flex circuits so they are between the back of the Card reader assembly and the LCD assembly. Secure the Card Reader with (4) screws.
2. If your printer has a Card Reader option, plug the two cables from the card reader into the Legacy PCB on the retained radio assembly.
3. Install the radio assembly, or the Bracket Radios into the Keypad and Housing. Secure it in place with (3) screws. If the Radio assembly has an external antenna card, insert the antenna card into the upper housing.



4. Plug the Keypad flex circuit from the Keypad and Housing into J7 on the CPU board. Plug the LCD flex circuit from the Keypad and Housing into J6 on the CPU board. Ensure both connector's locking tabs are secured.
5. Rotate the Keypad and Housing assembly onto the lower housing of the printer.



Ensure that you tuck the LCD and Keypad Flex circuits behind the edge of the CPU Board before securing the two housings.

Align the two housings and press the Keypad and Housing firmly into place. Secure the housings together with the (6) screws you retained when removing the old Keypad and Housing.

6. Re-assemble either the "D" rings or the carrying strap between the upper and lower housings before securing the two housings with the long screws. Refer to the procedure for RK17393-023 for more details.
7. If appropriate, you may install the Product ID label supplied with the kit in the recess on the top of the new Keypad and Housing.

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Replacement Kit RK18241-1 RW 420 Card Reader

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-11 Card Reader Kit, RW 420 in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

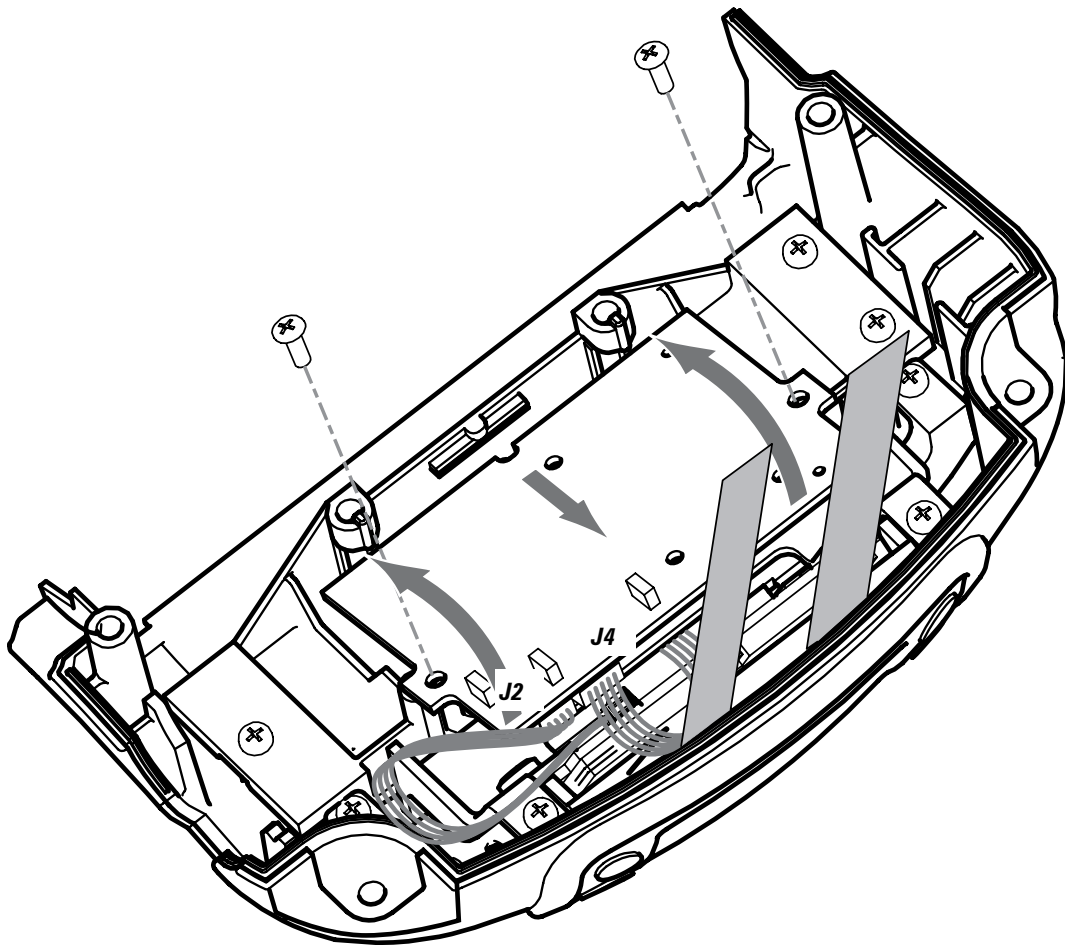
- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Remove the Upper Housing



Refer to procedure for RK17393-008 & RK18280-1 for more details on removing the Keypad and Housing Assembly.

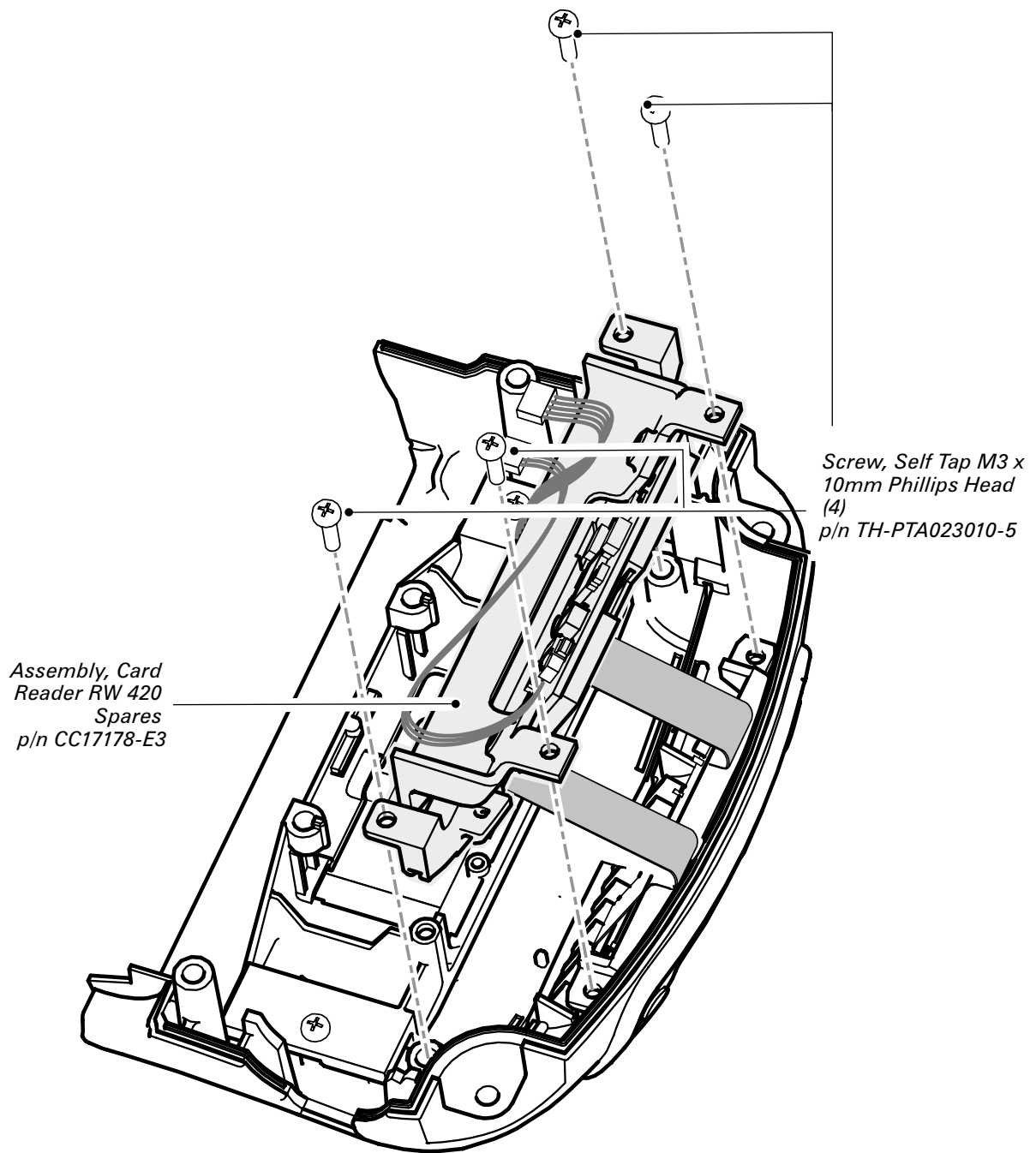
1. Remove and retain the (6) screws securing the Keypad and Housing to the printer.
2. Remove and retain the D-rings or the sleeves and carrying strap captured between the Keypad and Housing and the lower housing.
3. Pivot the Keypad and Housing forward. For ease of assembly, you may elect to unplug the keypad and LCD flex cables from J7 and J9 on the CPU Board.



Remove the Card Reader

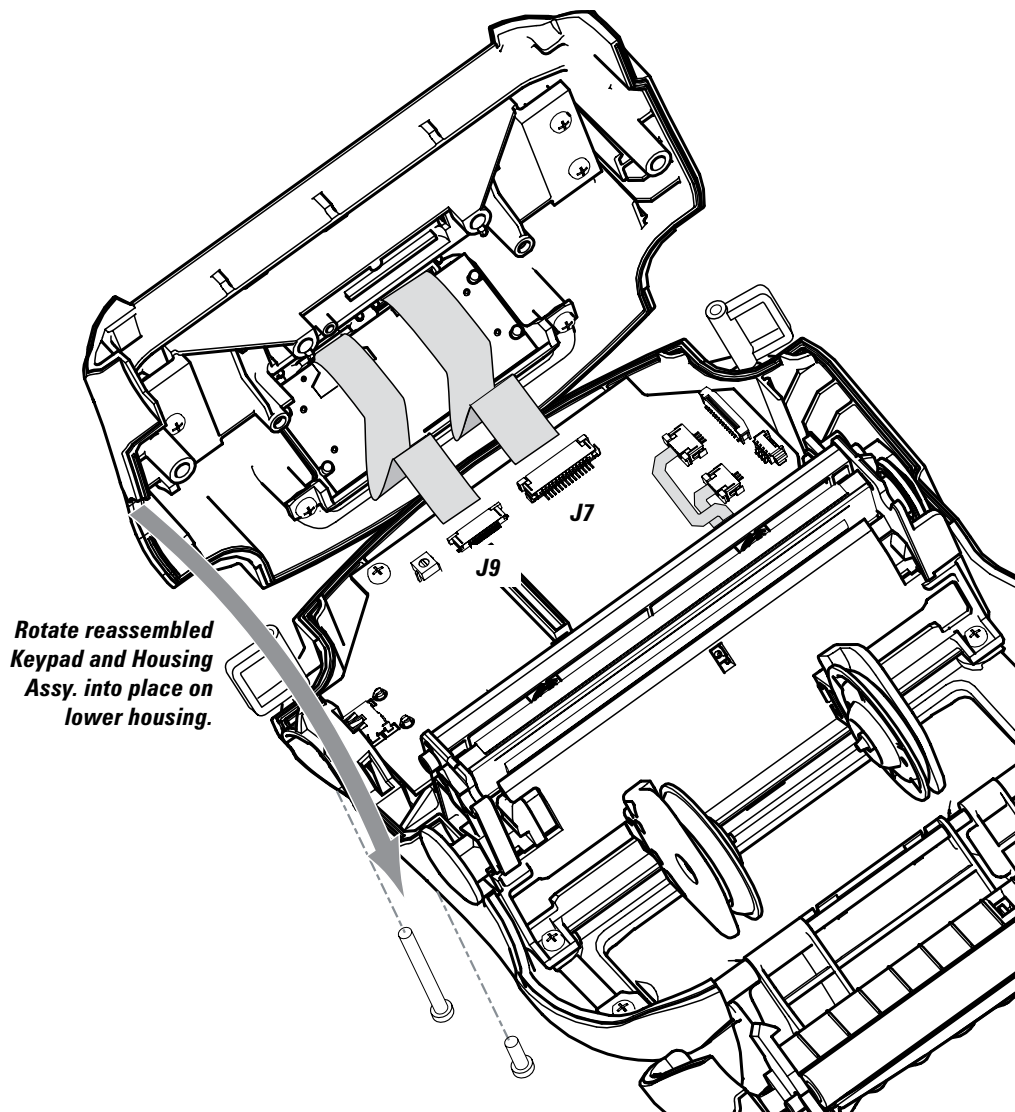
1. Remove the (2) screws holding the Legacy Board in place. Slide it forward and pivot it upwards to gain access to the connectors for the Card Reader
2. Unplug the two cables from the Card Reader Assembly to J2 and J4 on the Legacy PCB and remove the Legacy PCB
3. Remove the (4) screws holding the Card Reader Assembly in place and remove the Card Reader assembly.

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Install the Card Reader

1. Install the new Card Reader Assembly in the Keypad and Housing. Arrange the Keypad and LCD flex circuits so they are between the back of the Card reader assembly and the LCD assembly. Secure the Card Reader with (4) screws.
2. Plug the two cables from the card reader into J2 and J4 on the Legacy PCB
3. Pivot the Legacy Board back into place on the Radio Assembly, and re-secure it with (2) screws.



Re-install the Keypad and Housing

1. If necessary, plug the keypad and LCD flex cables into J7 and J9 on the CPU board.
2. Rotate the Keypad and Housing assembly onto the lower housing of the printer.



Ensure that you tuck the LCD and Keypad Flex circuits behind the edge of the CPU Board before securing the two housings.

Align the two housings and press the Keypad and Housing firmly into place. Secure the housings together with the (6) screws you retained when removing the old Keypad and Housing.

3. If you removed the "D" rings between the upper and lower housings, re-assemble them before securing the two housings with the long screws. Refer to the procedure for RK17393-023 for more details.

Replacement Kit RK17393-012- RW 420 Docking Plug

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-012 Docking Plug Kit, RW 420 in the RW 420 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users Guide

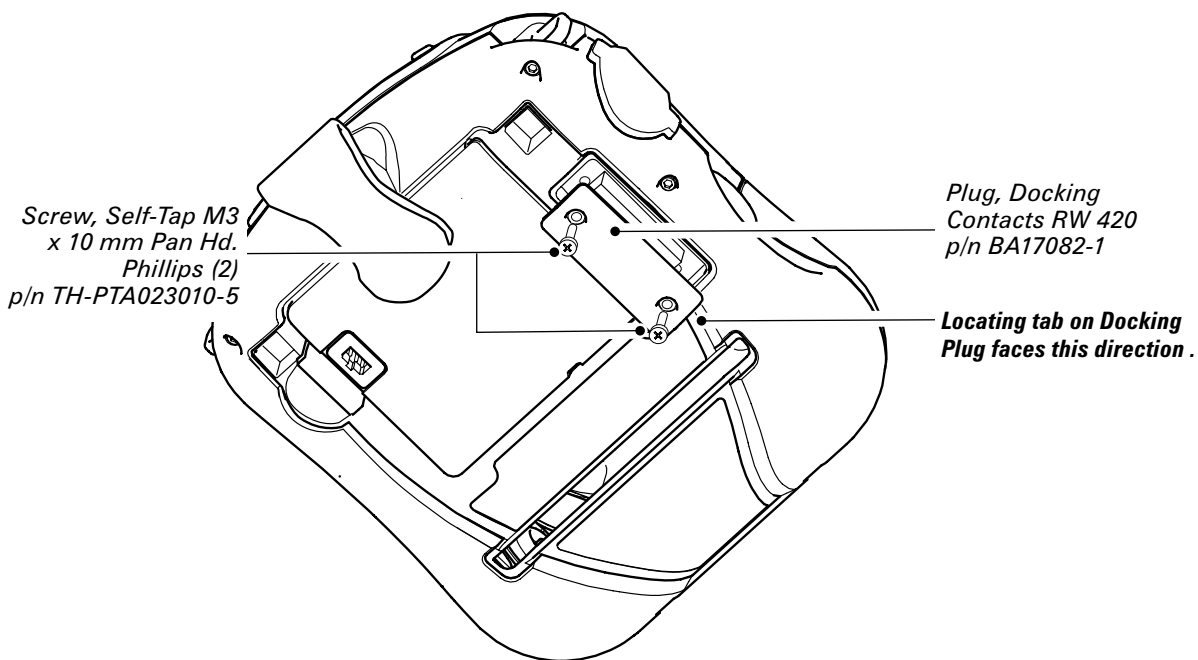
Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Always turn the printer off before performing this procedure.



Remove the Docking Plug

1. Remove the two screws securing the Docking Plug and remove the plug. The Docking Plug must be removed before the printer is used with the RW 420 Docking Cradle; it should remain installed at all other times.

Install the Docking Plug

1. Line the Docking Plug up with the Lower Housing. Note that there is a locating tab on the Plug that only allows it to be installed one way.
2. Secure the Plug with (2) screws.

RW 420 Radio Replacement Kits

Installation Instructions

This kit includes the parts and documentation necessary to install the following Replacement Kits in the RW 420 model printer.

Kit p/n	Description
RK18242-1	Radio, 802.11b (Compact Flash)
RK17393-015	Radio 802.11b (Zebra Value Radio)
RK17393-019	Radio, Bluetooth Kit
RK17393-029	Radio 802.11g Kit

The installation procedure for all of these kits is substantially the same. Read these instructions thoroughly before attempting to install any of these kits.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Remove the Upper Housing



Refer to the procedure for repair kits RK17393-008 and RK18280-1 for more details on removing the Keypad and Housing Assembly

1. Remove and retain the (6) screws at locations marked "A" securing the Keypad and Housing to the printer.
2. Remove and retain the D-rings or the sleeves and carrying strap captured between the Keypad and Housing and the lower housing.
3. Pivot the Keypad and Housing forward.
4. Unplug the Keypad and LCD flex cables from the CPU board.

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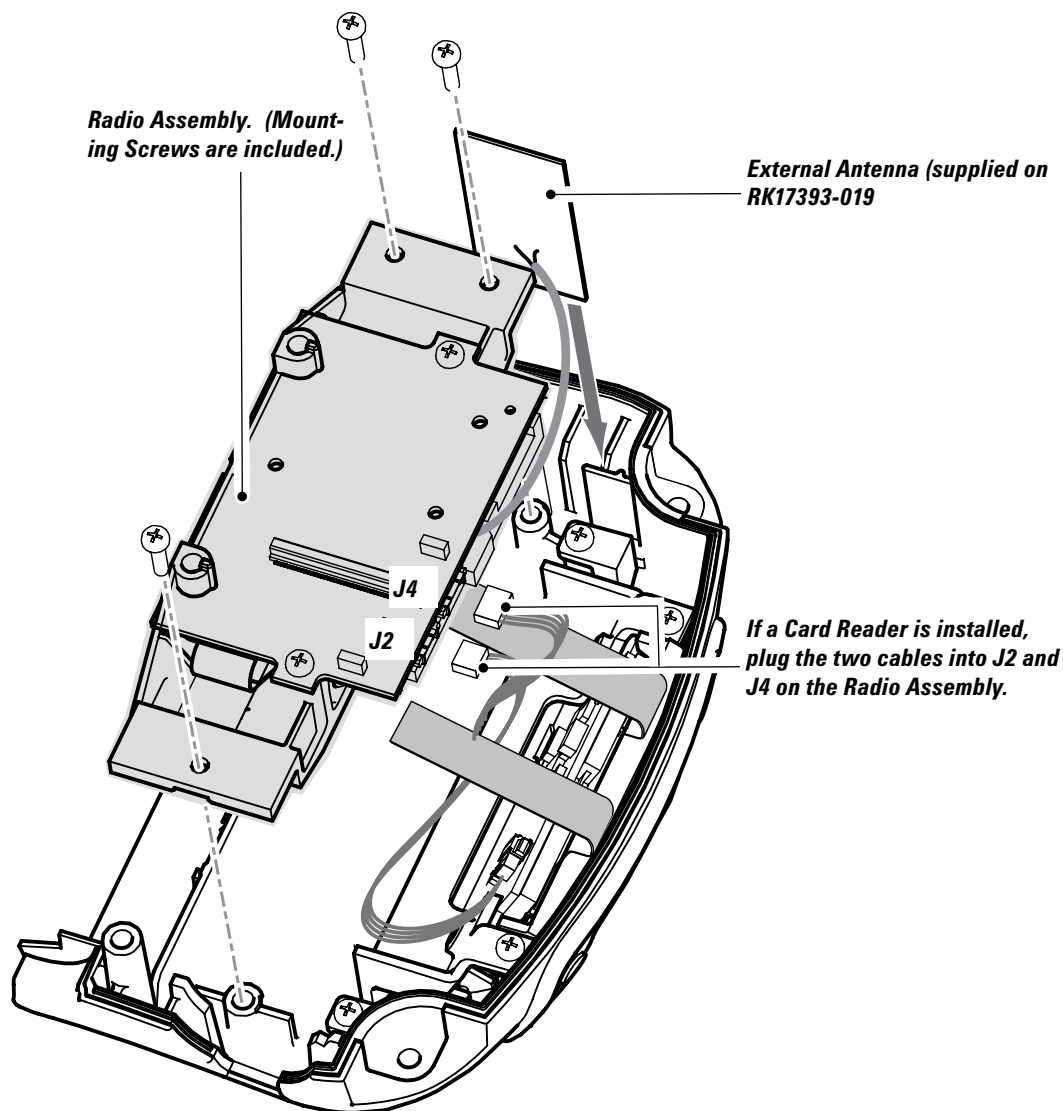
Remove the Radio Assembly

1. If your printer has a Bluetooth radio (RK17393-019), detach the antenna card from the lower housing.
2. Remove the Radio Assembly by removing the (3) screws securing the Bracket, Radios to the Card Reader Assembly.

If your printer has a Card Reader Assembly installed, unplug the two cables from the Card Reader Assembly to the Legacy PCB



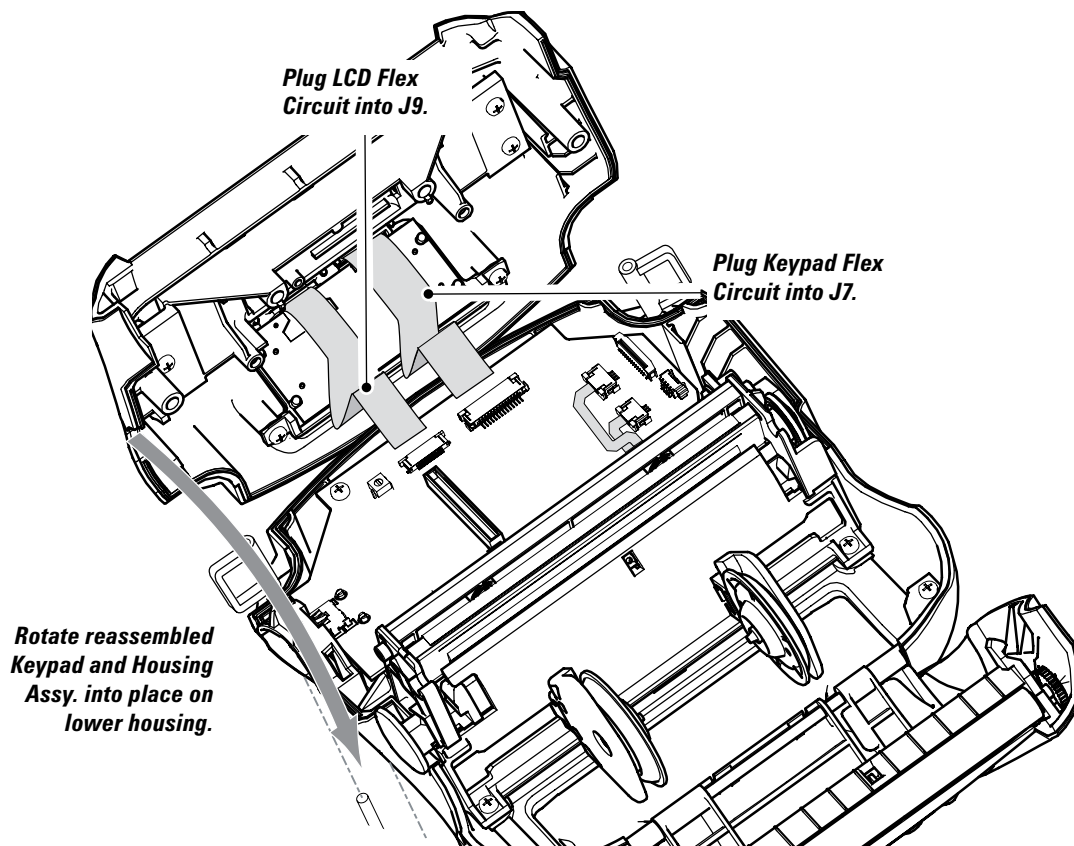
You must replace the Radio Assembly you have removed with one of the same type in order for the printer's regulatory markings to remain in conformance.



Installing the Replacement Radio Assembly

1. If your printer has a Card Reader option, plug the two cables from the card reader into the J2 and J4 connectors on the replacement Radio Assembly's Legacy PCB

2. Install the Radio Assembly into the Keypad and Housing. Secure it in place with (3) screws. If the Radio assembly has an external antenna card (RK17393-019), insert the antenna card into the upper housing.



Refer to the procedure for RK17393-008 & RK18280-1 for more details on the following steps.

4. Plug the Keypad flex circuit from the Keypad and Housing into J7 on the CPU board. Plug the LCD flex circuit from the Keypad and Housing into J9 on the CPU board. Ensure both connector's locking tabs are secured.
5. Rotate the Keypad and Housing Assembly onto the lower housing of the printer.



Ensure that you tuck the LCD and Keypad Flex circuits behind the edge of the CPU Board before securing the two housings.

If the Radio assembly has an external antenna card (RK17393-019), ensure the antenna card is seated into the lower housing before securing the Keypad and Housing Assembly. Align the two housings and press the Keypad and Housing firmly into place. Secure the housings together with the (6) screws you retained when removing the Keypad and Housing.

6. Re-assemble either the "D" rings or the carrying strap between the upper and lower housings before securing the two housings with the long screws. Refer to the procedure for RK17393-023 for more details.

Replacement Kit RK17393-020 RW 420 4MB Controller

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-020 Controller Kit, 4M Kit in the RW 420 model printer. Read these instructions thoroughly before attempting to install these kits.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Introduction

You will need to replace the Controller Board if it has been determined that it no longer functions properly. This procedure covers installation of Controller Boards with 4M (RK17293-020) DRAM/Flash Memory configurations. You must re-load the printer's application files and re-calibrate the printer after replacing the Controller Board.

Removing the Controller Board

1. Remove the Top Cover. Refer to the procedure for RK13793-008 and -009 for more details.
2. Unplug all cables from the Controller Board.



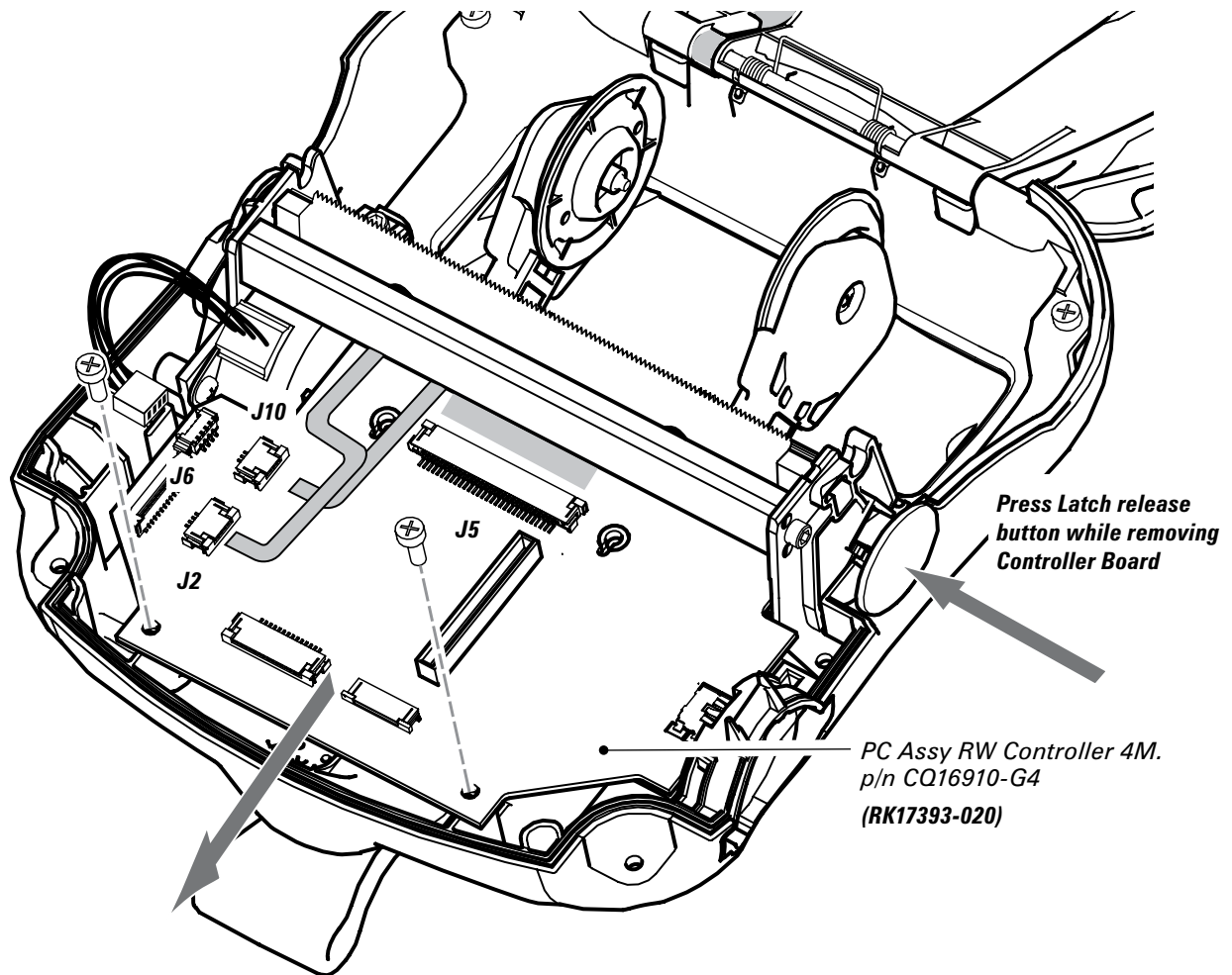
Ensure you unlatch the flex cable connectors before attempting to unplug them.

3. Remove the (2) Screws securing the Controller board. Push in the media cover latch release button and pull the Controller Board out of the printer.



Damage could occur if the Latch release button is not pressed in while removing the Controller Board

Installing the Replacement Controller Board



1. Slide the replacement Controller Board into place on the Lower Housing, while pressing and holding the Latch release button.

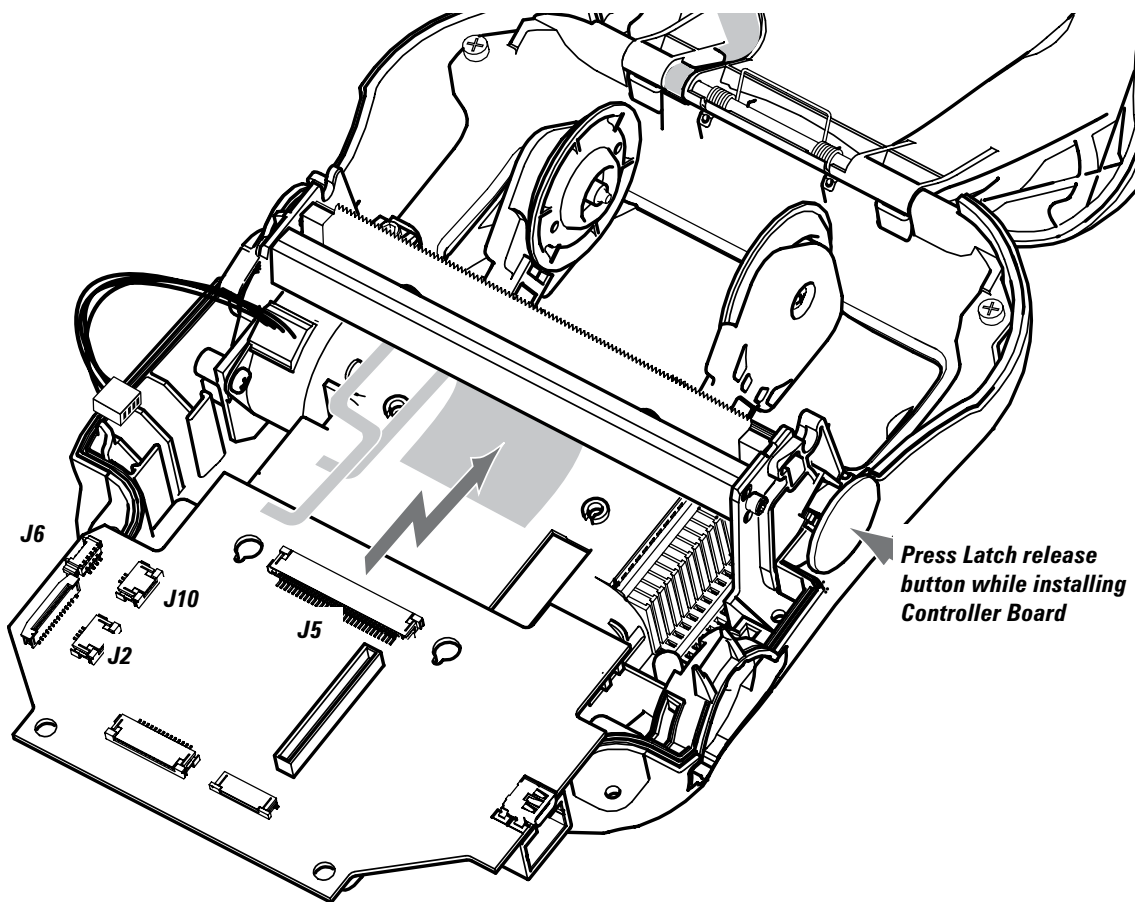


Damage could occur if the Latch release button is not pressed in while installing the Controller Board

2. Insert the Printhead cable into J5 on the Controller Board, and lock the connector. Push the Board into place, while pressing and holding media cover latch release button. Connect the remainder of the cables per the table below:

CABLE	CONNECTOR ON CPU
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

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NOTES: The connector for the motor cable is polarized. It will only fit in one direction. Do not try to force the connector in place.

Flex cables install in zero insertion force (ZIF) connectors. Pull the connector open, insert the cable, and close the connector to retain the flex cable.

Dress the motor cable away from mounting bosses so they won't get pinched during the next assembly steps.

3. Ensure that the latch release button moves in and out freely.
Secure the CPU Board. Secure the Controller Board in place with the (2) Screws supplied in the kit.
4. Install the Upper Housing. Refer to the procedure for kits RK17393-008 and RK18280-1 for more details.

Test the Printer

1. Install the Battery Pack.
2. Load the application. You must reload the printer's original application files. These files can be stored either on your local system or can be downloaded from the factory's database.



You must have authorization from Zebra to access the application files from the factory.

3. Calibrate the Sensors. Using the gray and white swatches, follow the on-screen instructions on the unit test and set-up software to properly calibrate the sensors.

Accessory Kit AK17393-022- RW Series Belt Clip

Installation Instructions

This kit includes the parts and documentation necessary to install the AK17393-022 RW Series Belt Clip Kit in the RW 420 and RW 220 model printers. Read these instructions thoroughly before attempting to install these kits.



RW 420 is illustrated. Procedure is the same for RW 220 Printers

Reference Materials

UMAN-RWS RW Series Users' Guide

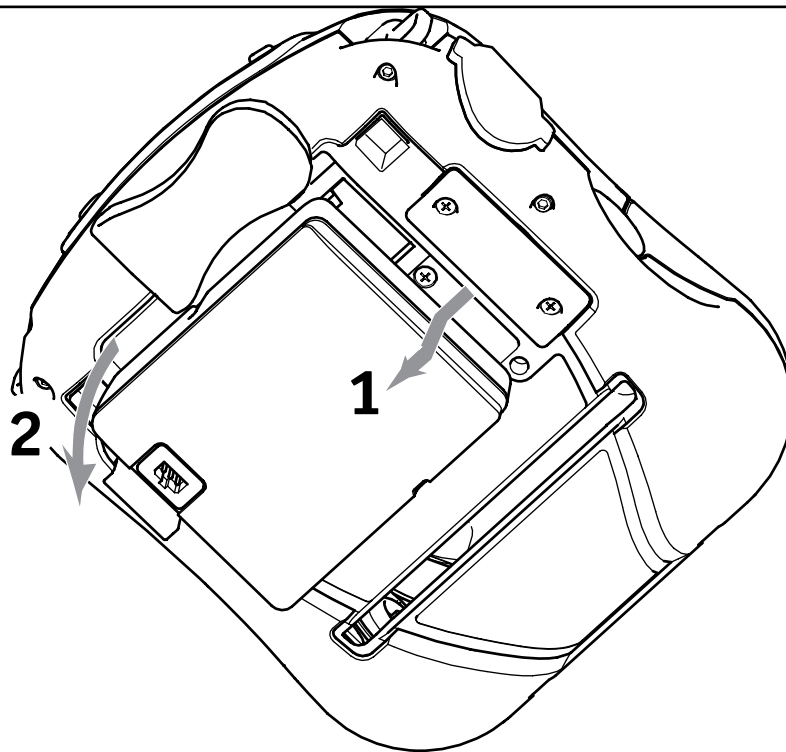
Tools Required

No tools are required for this procedure

Cautions



Always turn the printer off and remove the battery if you are replacing the Belt Clip.



Remove the Belt Clip

1. Release the locking tab on the battery pack, and rotate that end of the Battery Pack out of the printer as shown at "2".
2. Pull the Battery pack away from the Printer as shown at "1".
3. Pull the Belt Clip towards the empty battery well until it is free of the Printer.

continued on next page



Replace the Belt Clip

1. Press the ball end of the Belt Clip into the recess at the front of the battery well until it slips into place.
2. Rotate the Belt Clip to allow access to the Battery compartment.
3. Insert the battery into the printer. Note that the tabs on the Battery pack fit into corresponding slots on the lower cover.
4. Rock the Battery into the printer until it locks in place with an audible click.

Replacement Kit RK17393-023- RW Series Corner Attachment Kit

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-023 Corner Attachment Kit, in an RW series printer. Read these instructions thoroughly before attempting to install these kits.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

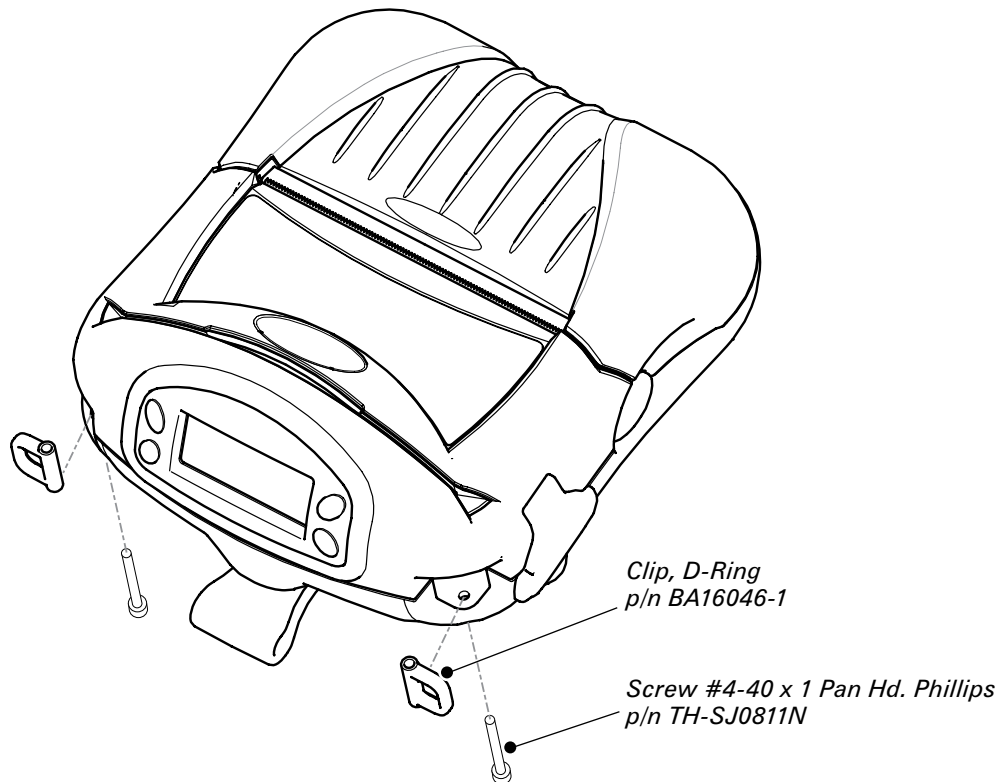
Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Always turn the printer off before performing this procedure.



Introduction:

This kit supplies you with the parts needed to replace the "D" rings supplied as standard equipment with the printer. You should remove the Shoulder Strap or Hand Strap from the printer before performing this procedure.

continued on next page

Removing the “D” Rings

1. Remove the (2) Screws securing the upper and lower covers of the printer.
2. Slide the (2) “D” rings out from the Printer.

Installing the “D” Rings

1. Slide the (2) “D” rings into the Printer.
2. Install the (2) Screws supplied with the kit. Ensure the “D” rings can pivot freely after installation.

Replacement Kit RK17393-024

RW Series Connector Door

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-024 RW Series Connector Door Kit in the RW 420 and RW 220 model printers. Read these instructions thoroughly before attempting to install this kit.



RW 420 is illustrated. Procedure is the same for RW 220 Printers



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



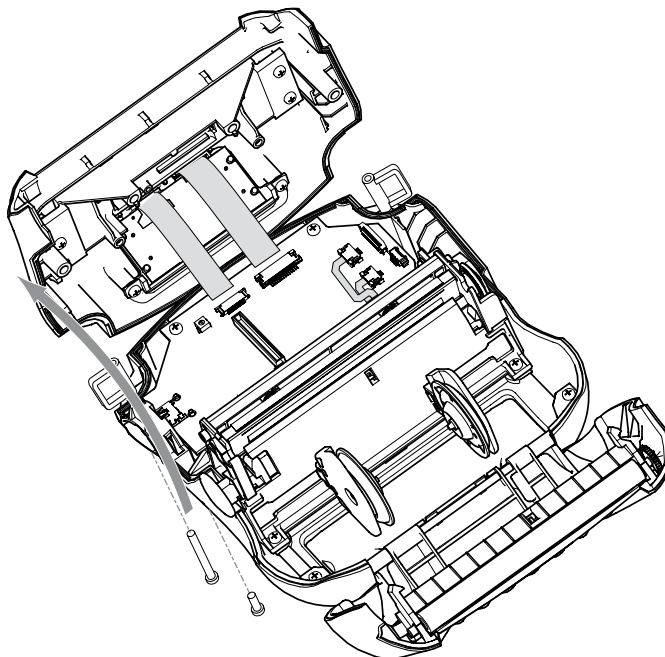
This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Remove the Keypad and Housing Assembly

1. Remove the Keypad and Housing Assembly as detailed in RK17393-008 & RK18280-1. It is not necessary to unplug the keypad and/or LCD cables for this procedure.



continued on next page

Remove the Connector Door

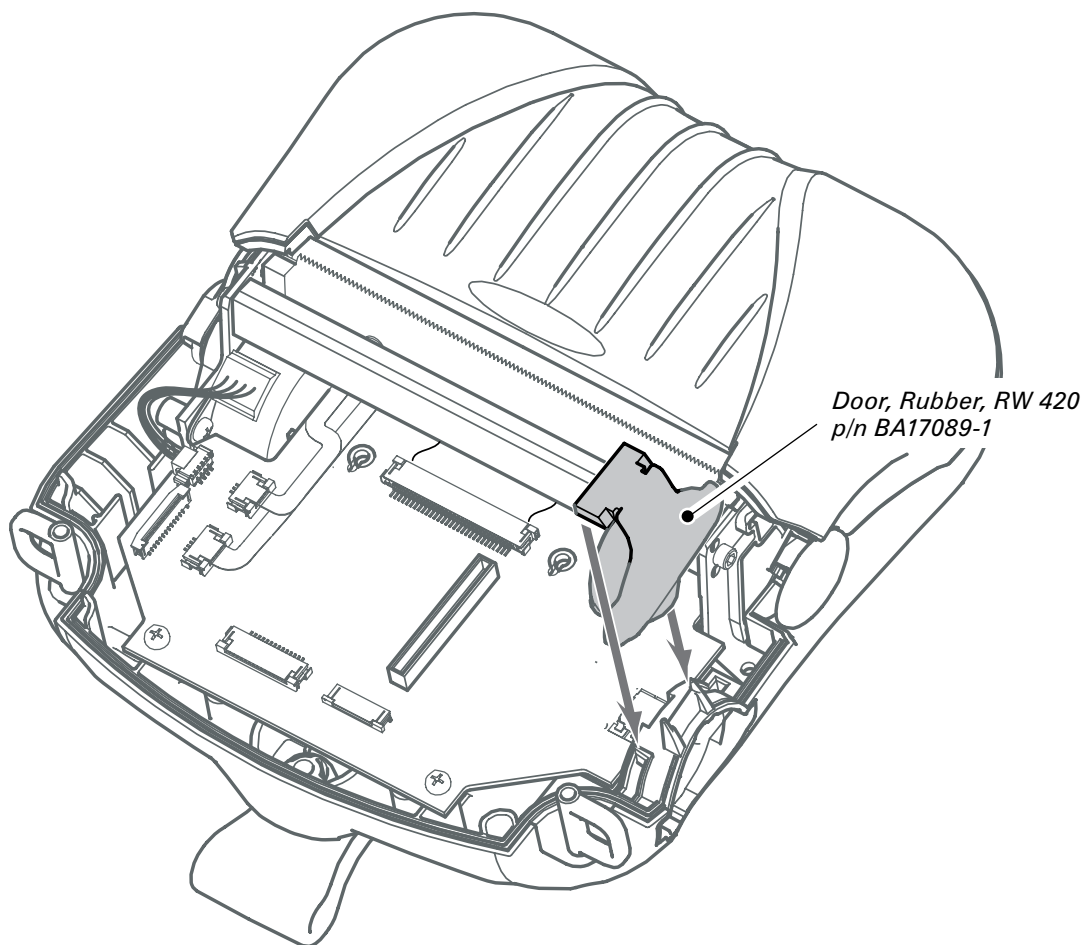
1. Pull the Connector Door away from the lower housing

Install the Connector Door

1. Press the Connector Door into place on the lower housing. Ensure that the top flap of the Connector Door sits properly on the lower housing as shown.

Re-assemble the Keypad and Housing Assembly

1. Re-assemble the Keypad and Housing Assembly to the Printer, referring to the procedure for RK1793-008/RK18280-1 as needed for more details.



Replacement Kit RK18243-1 RW 420 Vehicle Cradle PCB

Installation Instructions

This kit includes the parts and documentation necessary to install the RK18243-1 Docking Station PCB Kit, RW 420 in the RW 420 Vehicle Cradle. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWVC RW 420 Vehicle Cradle Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver
3/16" Hex Driver

Cautions

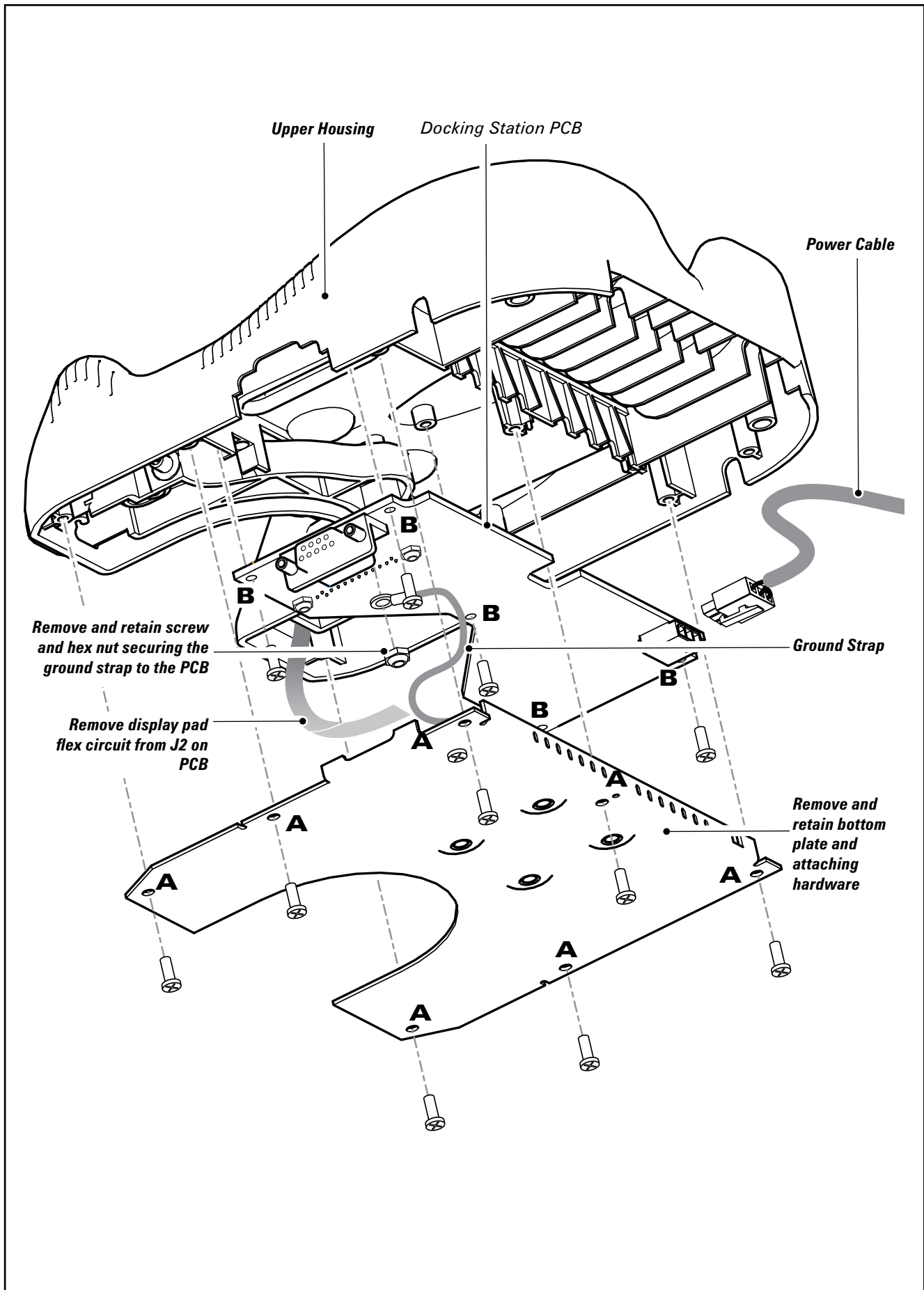


This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always disconnect the Vehicle Cradle from its power source.
- Remove the Printer from the Vehicle Cradle before installing this Replacement Kit
- If the Vehicle Cradle is secured to either the optional RAM Mount or to the vehicle, remove it, retaining all mounting hardware.

continued on next page



Unplug the Communications Cable

1. If you have a communications cable plugged into the RS232 port on the Vehicle Cradle, un-plug it.

Remove the Cradle from the RAM Mount

1. If the Vehicle Cradle is attached to the optional RAM Mount, remove it and retain the mounting hardware.

Remove the Bottom Plate

1. Remove and retain the (7) screws from the Plate, RW4 Cradle RAM Mount. (Marked "A" on illustration.)
2. Lower the Plate away from the PCB. Note that it is still attached to the PCB by the ground strap.

Remove the PCB

1. Remove the power cable from the PCB. It may be necessary to remove the cable clamps holding the Power Cable in place on the Upper Housing.
2. Unplug the flex circuit from J2 on the PCB to the display pad on the Upper Housing.
3. Remove and retain the (5) Screws from the PCB. (Marked "B" on illustration.)
4. Remove the PCB assembly from the upper housing. Note that it is still attached to the Plate by the ground strap.
5. Remove the screw and nut from the RS232 connector on the PCB that retains the Ground Strap on the PCB. Remove and retain the Plate and the attached Grounding Strap.

Install the replacement PCB

1. Secure the ground strap, still attached to the Plate, RW4 Cradle RAM Mount to the RS232 connector on the replacement PCB using the screw and hex nut removed in the first step.
2. Secure the PCB to the Upper Housing of the Vehicle Cradle with (5) Screws retained in the previous step..
3. Plug the Flex Circuit from the Upper Housing into the PCB.
4. Plug the power cable into the PCB

Install the Base Plate

1. Secure the Plate, RW4 Cradle RAM Mount to the Upper Housing with the (7) screws retained from the first step.

Finish the Installation

1. Re-secure any cable clamps you removed during the disassembly procedure. Ensure the power cable is routed correctly for your installation.
2. If you removed a communications cable from the Cradle, reinstall it.
3. If the Cradle was attached to a RAM Mount, re-secure it with the retained hardware.

Replacement Kit RK17393-026- RW 420 Vehicle Cradle Housing Assembly

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-026 Docking Station Housing Assembly Kit, RW 420 in the RW 420 Vehicle Cradle. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWVC RW 420 Vehicle Cradle Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

3/16" Hex Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always disconnect the Vehicle Cradle from its power source.
- Remove the Printer from the Vehicle Cradle before installing this Replacement Kit
- If the Vehicle Cradle is secured to either the optional RAM Mount or to the vehicle, remove it, retaining all mounting hardware.

Unplug the Communications Cable

1. If you have a communications cable plugged into the RS232 port on the Vehicle Cradle, unplug it.

Remove the Cradle from the RAM Mount

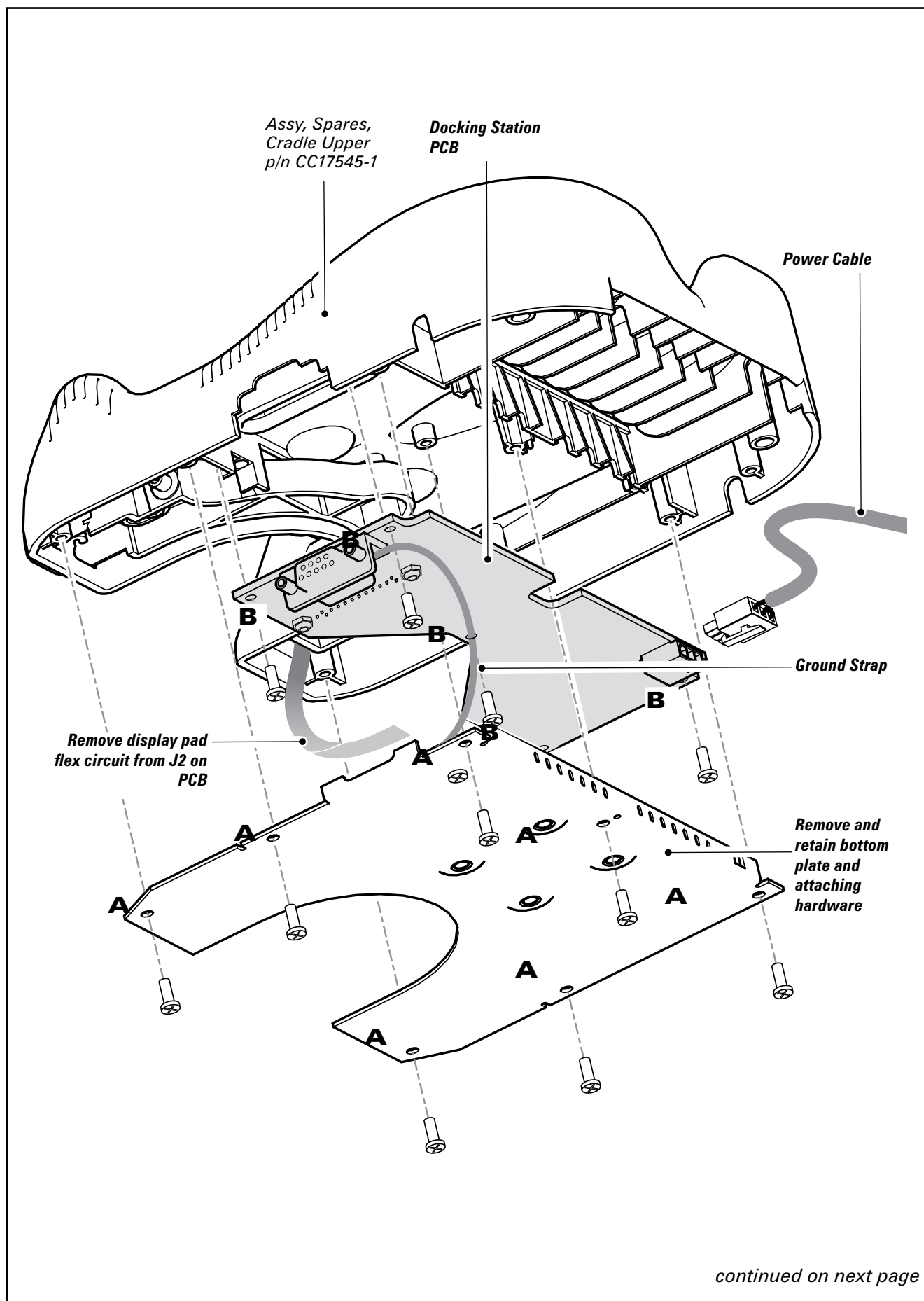
1. If the Vehicle Cradle is attached to the optional RAM Mount, remove it and retain the mounting hardware.

Remove the Bottom Plate

1. Remove and retain the (7) screws from the Plate, RW4 Cradle RAM Mount. (Marked "A" on illustration opposite.)
2. Lower the Plate away from the PCB. Note that it is still attached to the PCB by the ground strap.

Remove the PCB

1. Unplug the Power Cable from the PCB. Remove and retain the cable clamps holding the Power Cable in place on the Upper Housing and remove the cable.
2. Unplug the flex circuit from J2 on the PCB to the display pad on the Upper Housing.
3. Remove and retain the (5) Screws from the PCB. (Marked "B" on illustration opposite.)



4. Remove the PCB and the Lower Plate from the Upper housing assembly.

Install the PCB in the replacement Housing

1. Plug the Flex Circuit from the Upper Housing into the PCB.
2. Secure the PCB to the Upper Housing of the Vehicle Cradle with (5) Screws retained in the previous step..
3. Plug the Flex Circuit from the Upper Housing into the PCB.
4. Plug the power cable into the PCB

Install the Base Plate

1. Secure the Plate, RW4 Cradle RAM Mount to the Upper Housing with the (7) screws retained from the first step.

Finish the Installation

1. Re-secure any cable clamps you removed during the disassembly procedure. Ensure the power cable is routed correctly for your installation.
2. If you removed a communications cable from the Cradle, reinstall it.
3. If the Cradle was attached to either an optional RAM Mount or to a vehicle, re-secure it with the retained hardware.

Replacement Kit RK17949-001- RW 220 Media Cover

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17949-001 Media Cover Kit in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW series Users' Guide

Tools Required

- 3/32" Hex Driver
- #0 or #1 Phillips Head Screw Driver

Cautions



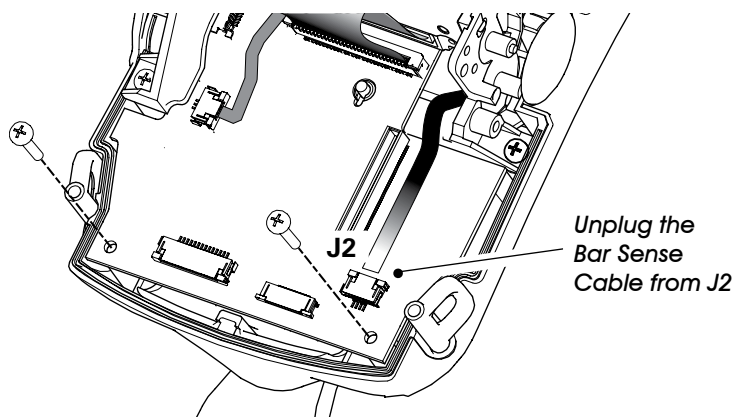
This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

Removing the Media Cover

- 1 Turn the printer off and remove the battery pack.
- 2 Press the latch release button and open the Media Cover. Remove any media from the printer.
- 3 Remove the Upper Housing, referring to procedure for RK17974-008/009. Pivot the Upper Housing away from the Printer. You may elect to disconnect the LCD and Keypad flex circuits from the CPU Board for ease of handling the Printer.
4. Remove the two screws securing the CPU Board to the Lower Housing.
5. Unlock the connector J2 and remove the Bar Sense Cable from the CPU Board.



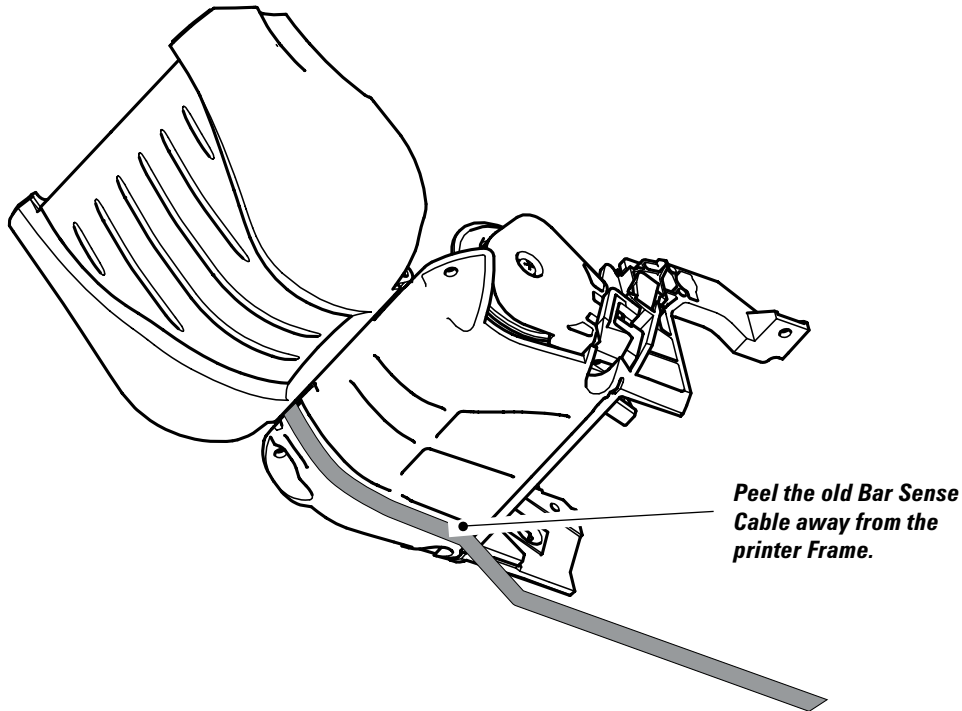
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6. Remove the Printer Frame from the Lower Housing. (Refer to the procedure for RK17974-007 for more details.) Carefully pivot the printer frame out of the Lower Housing and lift the Media Cover clear of the Lower Housing .



Avoid putting excess strain on the remaining cables connected to the CPU Board.

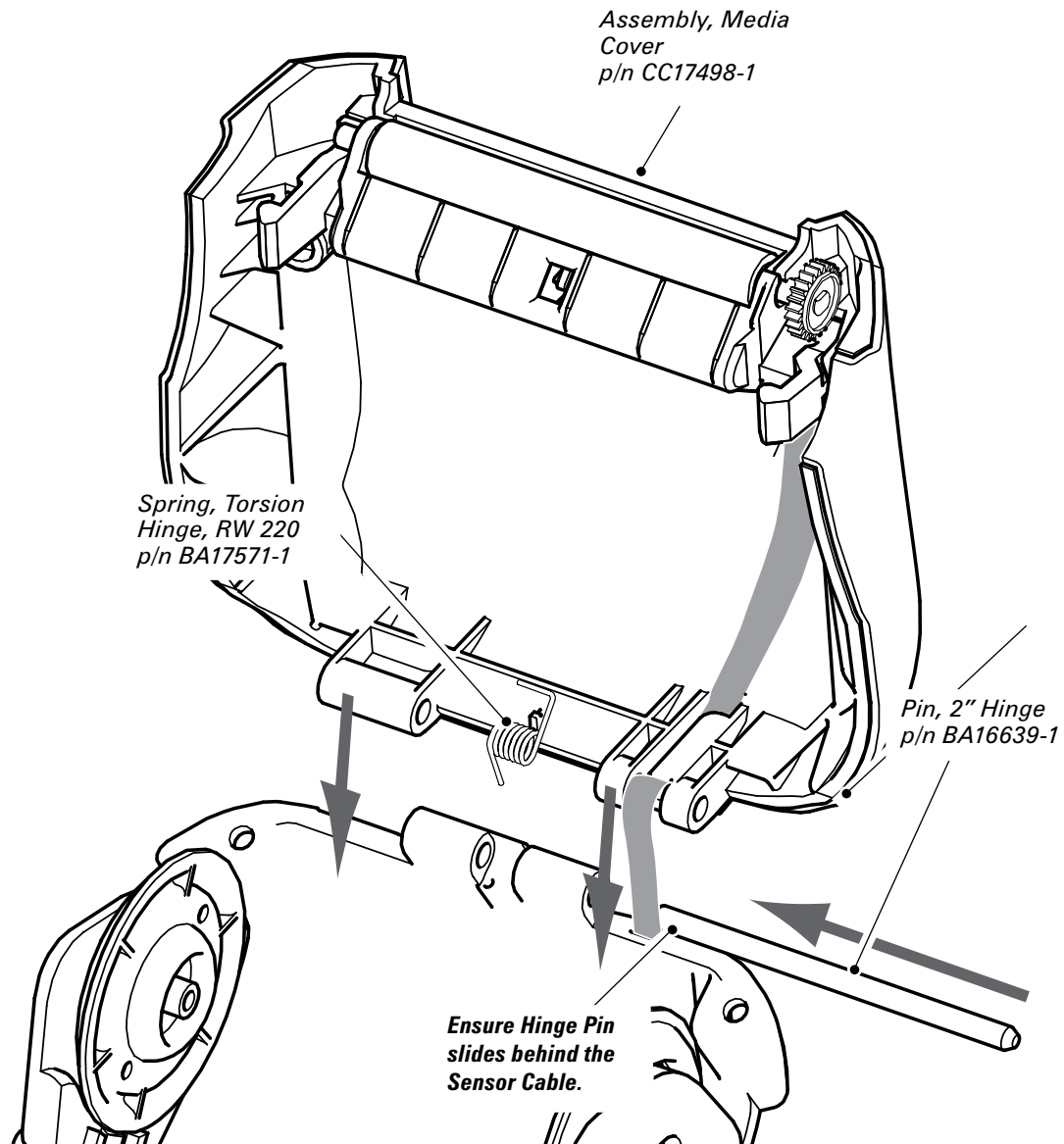
7. Remove the Platen and Gear from the Media Cover Assembly. (Refer to the procedure for RK17974-002 for more details)



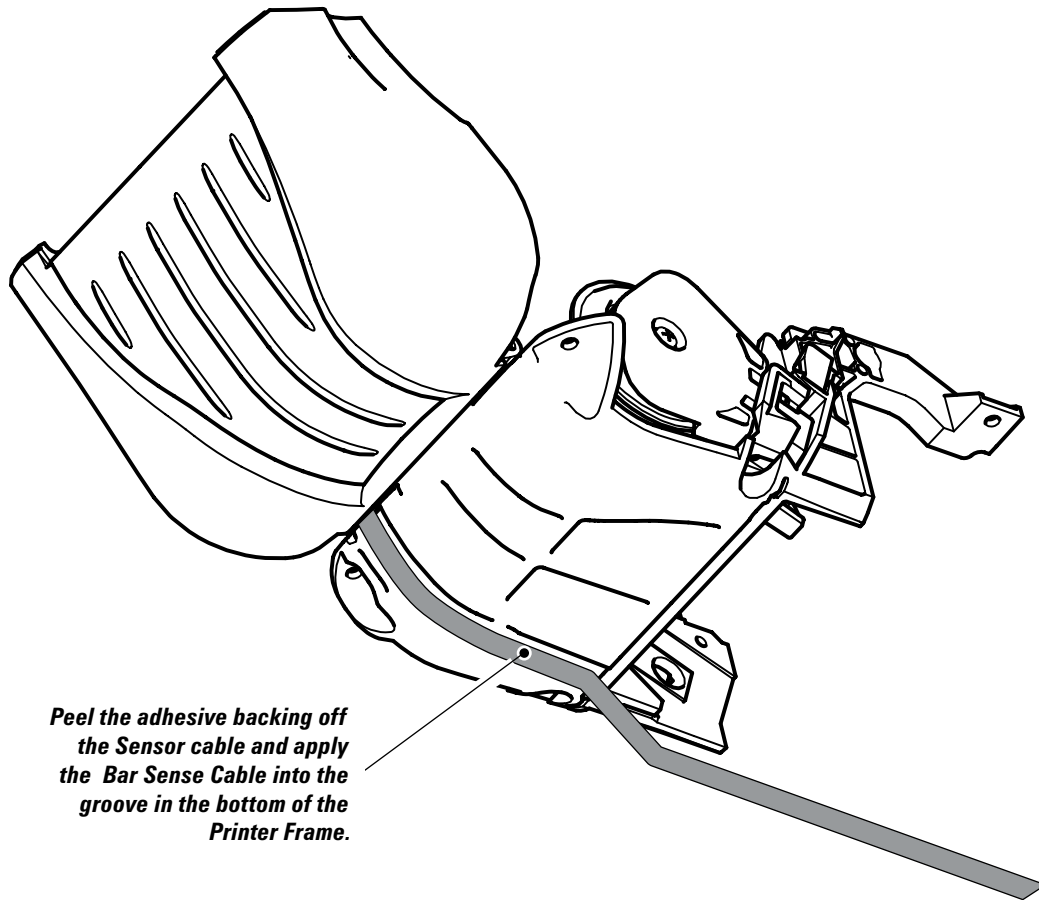
8. Remove the Bar Sense Cable from the Printer Frame. Carefully peel the Bar Sense Cable off the bottom of the Printer Frame.
9. Remove the Media Cover. Using a 3/32" hex driver, push the Hinge Pin out of the Printer Frame, and then lift the Media Cover from the Printer Frame.

Installing the Media Cover

1. Insert the Torsion Spring into the Lower Cover.
2. Feed the Bar Sense Cable through the slot in the Printer Frame as shown.
3. Align the Media Cover with the Printer Frame and slide the Hinge Pin through the Media Cover, the Torsion Spring and Printer Frame. Center the pin and ensure that the hinge pin is behind the Bar Sense Cable.



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4. Peel the backing off the bar sensor cable and adhere it in the groove on the bottom of the Printer Frame.
5. Install the Printer Frame in the Lower Housing, again referring to procedure for RK17974-007 if necessary. Avoid putting excess strain on the remaining cables connected to the CPU Board.
6. Plug the Bar Sensor Cable into J2 (PAPER) on the CPU Board and lock the connector.
7. Re-install or, if necessary, replace the Platen and Gear Assembly (refer to the procedure for RK17974-002)
8. Install the Upper Housing, ensuring that you have re-inserted the LCD and Keypad flex circuits. Also ensure you have re-installed the D-Rings between the Upper and Lower Housings.
9. Reinstall the battery
10. Calibrate the Sensors.



The calibration procedure can only be performed by certified personnel using special equipment and software.

Using the gray and white swatches, follow the on-screen instructions on the unit test and set-up software to properly calibrate the sensors. It is recommended that the complete unit test procedure be performed whenever a sensor assembly has been replaced.

Replacement Kit RK17949-002- RW 220 Platen/Gear

Installation Instruction

This kit includes the parts and documentation necessary to install the RK17974-002 Platen/Gear Kit in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



Caution • *The operator must wear a properly grounded ESD strap to perform the following repair procedure.*

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • *This installation must be performed only by a qualified service technician.*

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Replacing the Platen Assembly

Remove the Old Platen Assembly

1. Remove and retain the two screws holding the Holder, Platen to the Media Cover.
2. Carefully rotate the Holder, Platen towards the interior of the printer until it is free from the media cover.



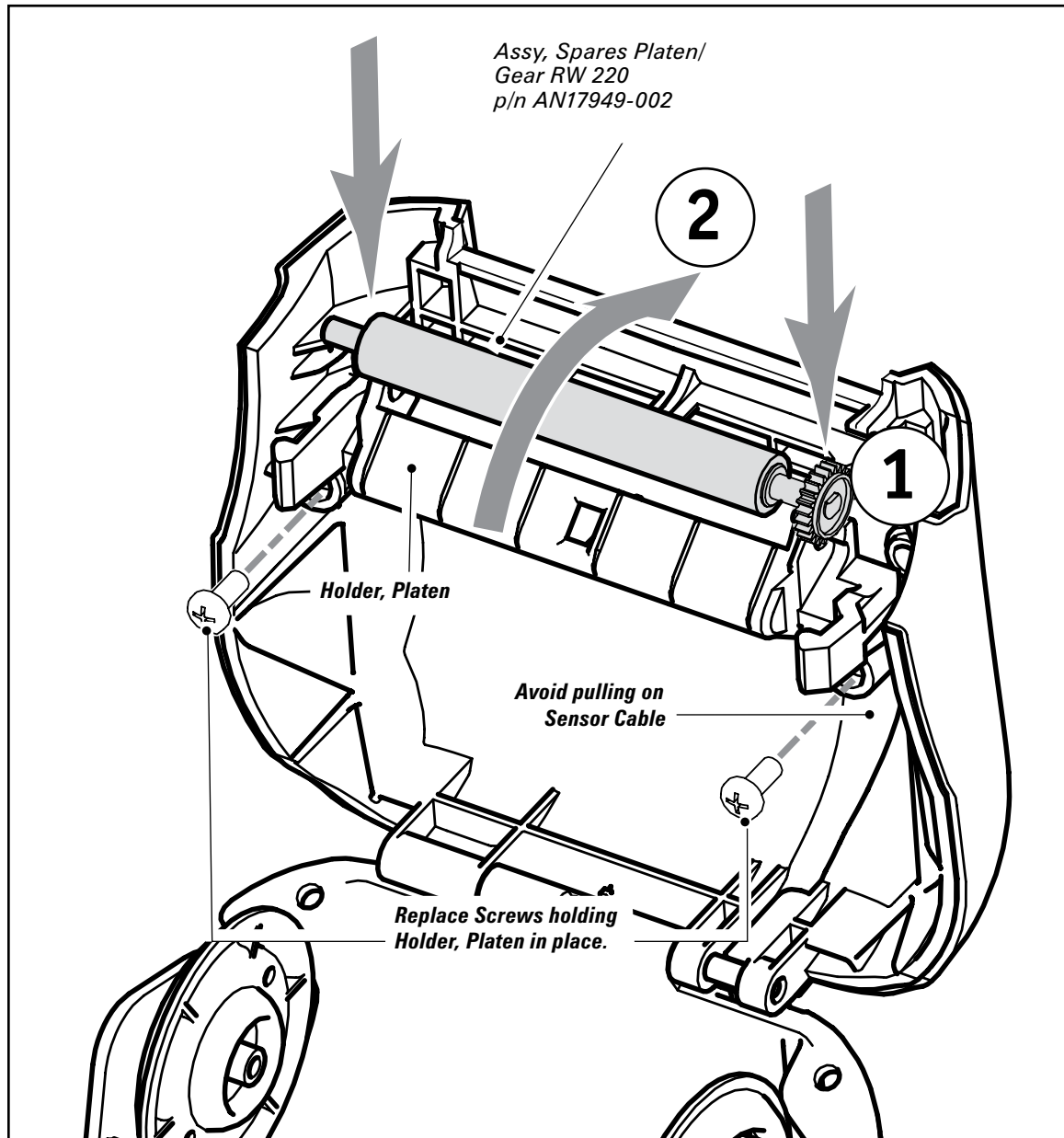
Caution • *Avoid putting strain on the sensor cable which is adhered to the inside of the Holder, Platen. Do not exert excessive force on the Holder, Platen when it is removed from the Media Cover.*

3. Remove the Platen Assembly from the Holder, Platen.

Install the New Platen Assembly

1. Install the new Platen Assembly into the Holder, Platen, noting the location of the Gear at "1".
2. Rotate the Holder, Platen back into the Media Cover until it snaps into place as shown at "2". Ensure that the new Platen Assembly spins freely.
3. Secure the Holder, Platen to the Media Cover with the (2) retained Screws.

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Replacement Kit RK17479-003- RW 220 Media Guide

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17479-003 Media Guide Kit in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Removing the Media Assembly

1. Turn the printer off and remove the battery pack.
2. Remove the Upper Housing, referring to procedure for RK17479-009. Pivot the Upper Housing away from the Printer. You may elect to disconnect the LCD and Keypad flex circuits from the CPU Board for ease of handling the Printer.
3. Unplug the following cables from the CPU Board: J2 (Bar Sensor), J10 (Gap Sensor). You may also elect to unplug the Motor Cable from J6, which is on the underside of the CPU Board.
4. Remove the two screws securing the CPU Board to the Lower Housing.
5. Remove the (4) Screws holding the Printer Frame and Media Cover to the Lower Housing. Retain the Screws
6. Tilt the Printer Frame towards the back of the unit. While it is not necessary, you may elect to remove the Printer Frame and Media Cover assembly from the Lower Housing.
7. Remove and retain the (2) Screws securing the Media Assembly to the Printer Frame.

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8. Remove the Media Assembly:

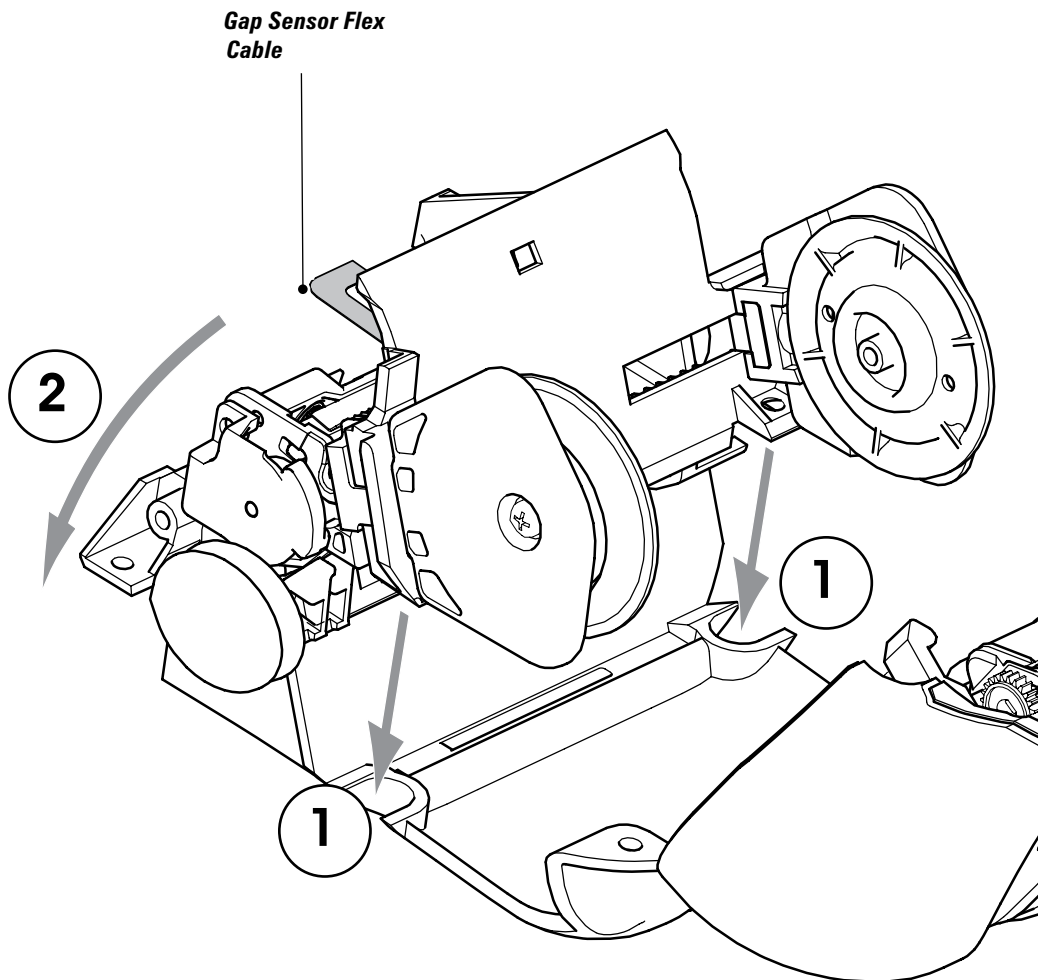


Use care when working around the Printhead. The edges of the tear bar are very sharp!

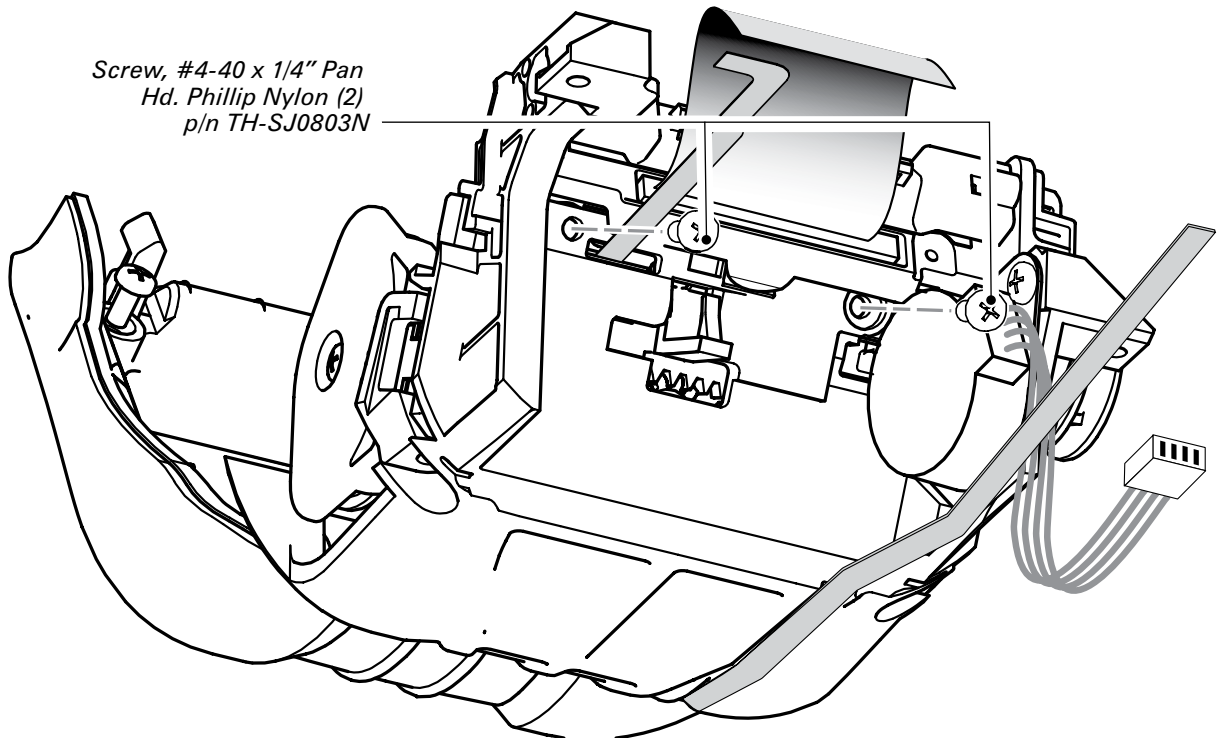
Rock the Media Assembly towards the back of the printer and then lift it up and away from the Printer Frame.

Installing the Media Assembly

1. Slide the Media Guide Assembly into the Printer Frame as shown at "1" below. Dress the Gap Sensor flex cable through the Printer Frame
2. Rock the Media Guide Assembly back towards the Printer Frame as shown at "2" until it snaps in place.



3. Secure the Media Assembly to the Printer Frame with (2) Screws.



4. Reinstall the Printer Frame to the Lower Housing. Refer to procedure RK17479-007 for more details.
6. Plug the Gap Sensor Cable to the CPU Board Use the the table below for reference. If you unplugged the Motor cable, plug it into J6 at this time.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

7. Install the Upper Housing. Refer to the procedure for RK17479-008 and RK17479-009 for more details. Ensure that the "D" Rings or optional hand strap components are installed.
8. Install the battery.
9. Re-Calibrate the Sensors.



The calibration procedure can only be performed by certified personnel using special equipment and software.

Using the gray and white swatches, follow the on-screen instructions on the unit test and set-up software to properly calibrate the sensors. It is recommended that the complete unit test procedure be performed whenever a sensor assembly has been replaced.

Replacement Kit RK17393-004- RW Series Media Disk

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17393-004 Kit Repair RW Series Media Disk in RW series printers. Read these instructions thoroughly before attempting to install this kit.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove media before installing this Replacement Kit

Remove the Media Support Disks

1. Turn off the unit, open the Media Cover and remove any media loaded in the printer. (Refer to User's Manual.)
2. Remove the existing Support Disks by removing the screw and flat washer securing them to the Media Supports.

Install new Media Support Disks

1. Determine which media core size you will be using. The media core width is set by flipping the media disks so that the supports for the desired core size faces towards the inside of the printer. The printer is adjusted at the factory for media with a 3/4" core.

Printers using media with a 1 3/8" core must have the Media Disks adjusted to use this media. See "Changing the Media Core Size" below.



Note: Both Support Disks must be set to use the same diameter core.

2. Assemble the Disks. Hold the Support Disk against the Media Support and secure with the Flat Washer and the Screw as shown above. Ensure the Disk spins freely after assembly.
3. Repeat this procedure for the opposite side.

Changing the Media Core Size

The printer is adjusted at the factory for media with a 3/4" core. If you need to use media with a 1 3/8" core, do the following:

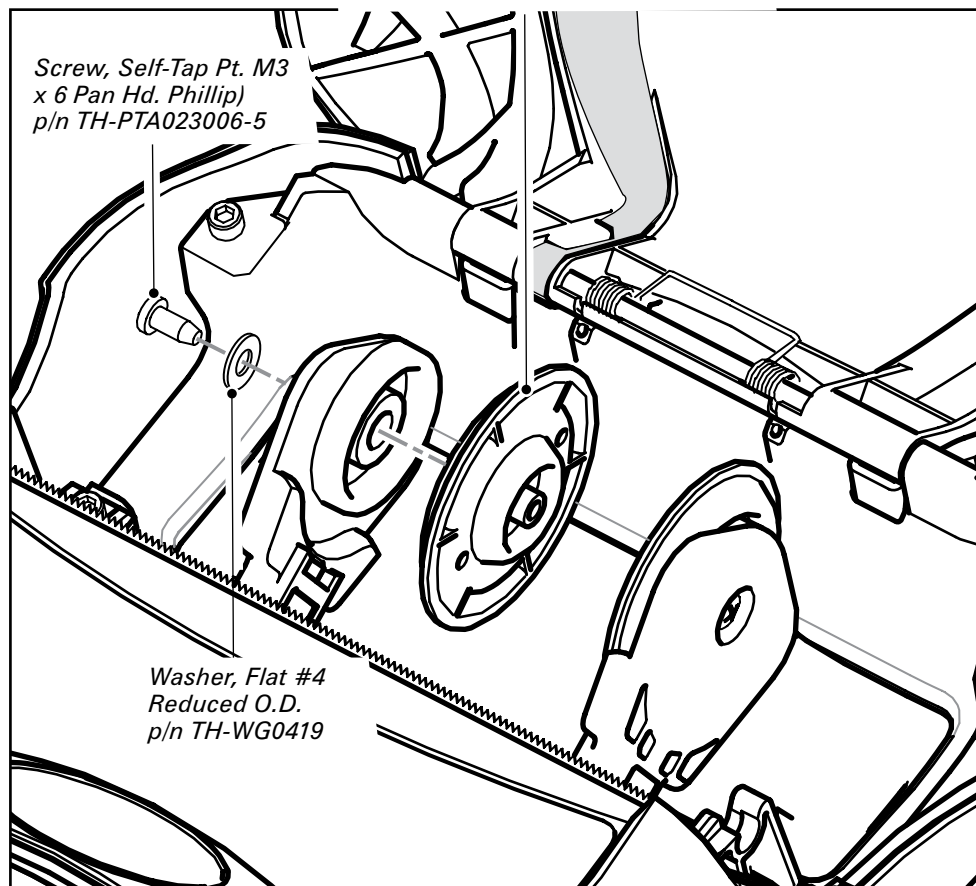
1. Remove and retain the Screw and Washer from a Media Support as described above. Flip the Media Disk end-for-end, and reassemble to the Media Support with the retained hardware.
2. Repeat this procedure for the other Media Support.



Note: *The Media Support Disks should be replaced after they have been re-adjusted for different core sizes a total of five (5) times.*

*Disk Pick Up Media Support
p/n BA16937-1*

Disk shown adjusted for 3/4" core.



*Screw, Self-Tap Pt. M3
x 6 Pan Hd. Phillip)
p/n TH-PTA023006-5*

*Washer, Flat #4
Reduced O.D.
p/n TH-WG0419*



RW 420 is illustrated. Procedure is the same for RW 220 models.

Replacement Kit RK17949-005- RW 220 Printhead

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17949-005 Printhead Kit in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Preparation

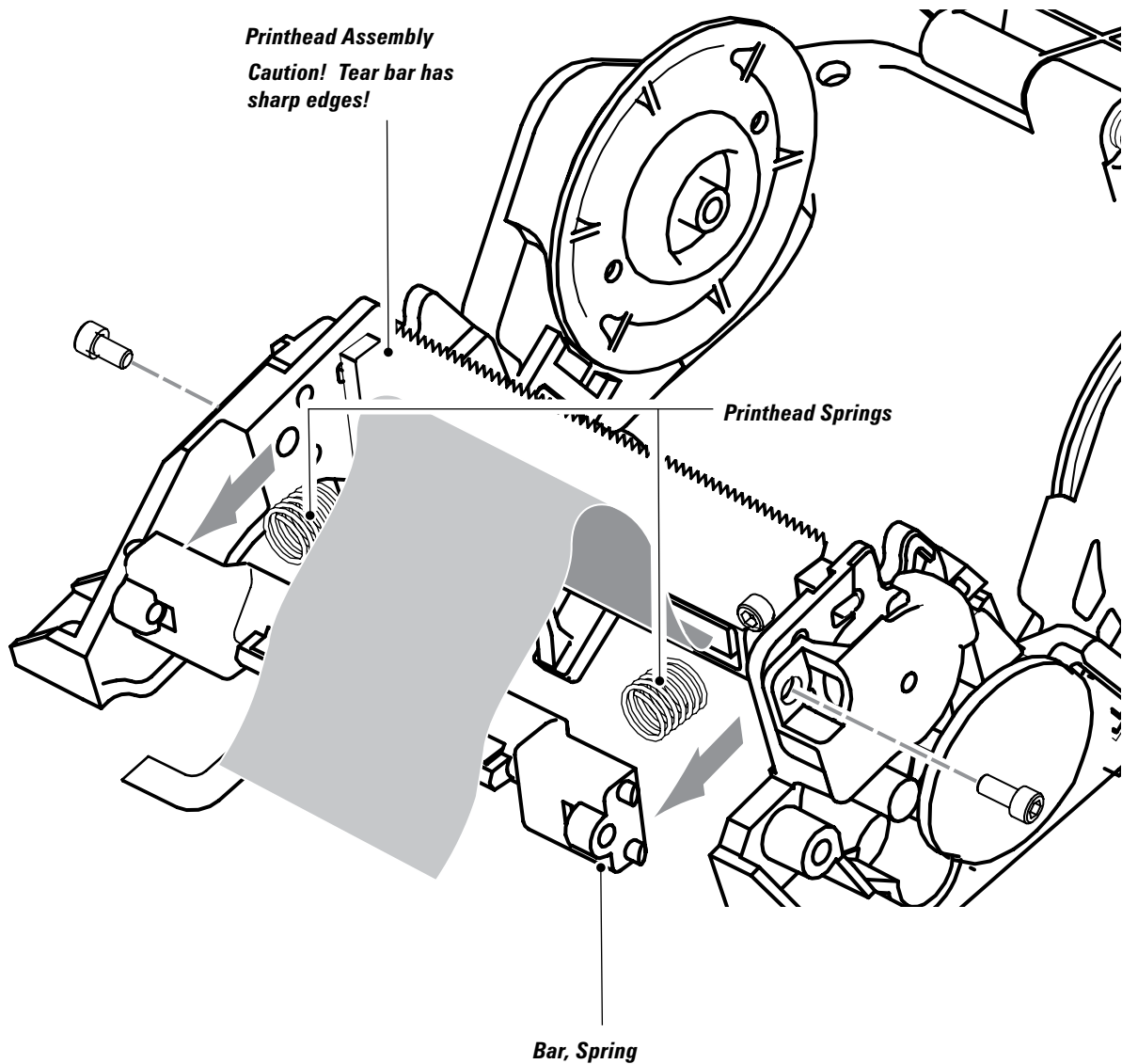
1. Turn the printer off and remove the battery pack.
2. Remove the Upper Housing. Refer to Procedure RK17949-008/009 for more details. It is not necessary to unplug the Keypad or the LCD from the CPU Board.
3. Remove the Mounting Screws from the CPU Board. Pull the CPU Board away from the Printer to allow access to the Printhead connector.
4. Unplug the Printhead, Gap and Bar Sensor Cables from the CPU Board. Remove the Printhead Cable from the retaining features of the Bar, Spring.

Removing the Printhead



Note: Use care when handling the Printhead Assembly. The edges of the tear bar are sharp!

- 1 Remove the Bar, Spring from the Printer Frame. Remove and retain the (2) Screws securing the Bar, Spring. Flex the sides of the Printer Frame enough to allow the Bar, Spring to be removed.
2. Remove the (2) Printhead Springs.
3. Remove the Printhead out of the Printer Frame. Flex one side of the Printer frame, and then pull the pivot point of the printhead out from the Printer Frame.



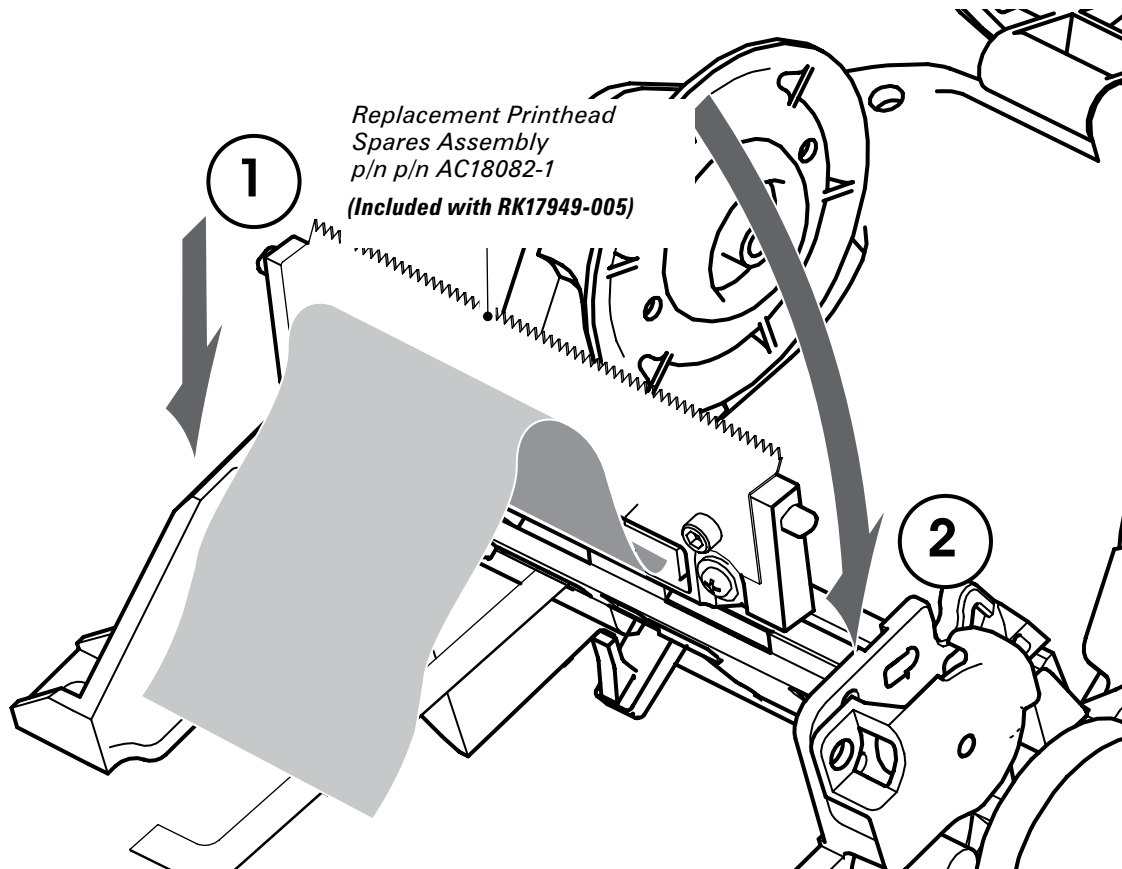
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Installing the Printhead

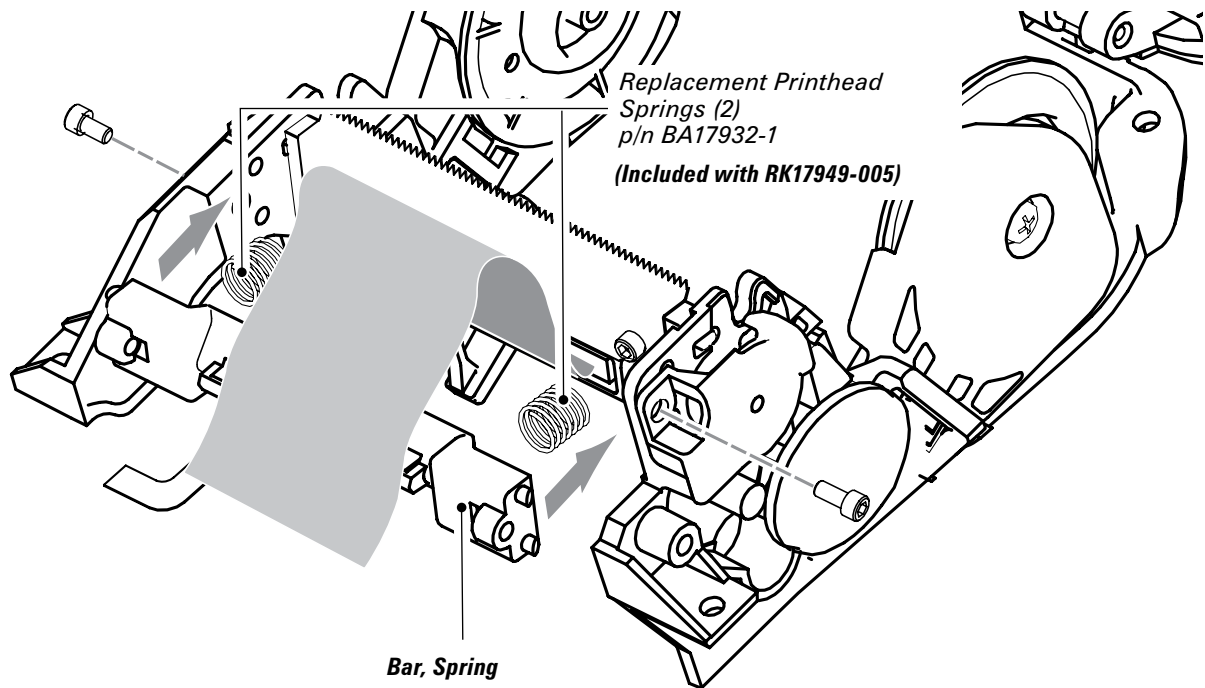


Note: Use care when handling the Printhead Assembly. The edges of the tear bar are sharp! Avoid getting your fingers on the glass surface of the printhead. Always clean the printhead after installation to remove any oils or debris that may have accumulated during installation.

1. Install the Printhead Assembly. Insert one pivot point of the printhead into the slot on the Printer Frame Assembly as shown at "1" below. Rotate the printhead so that it snaps into the slot on the other side of the Printer Frame as shown at "2".



2. Install the (2) Springs, Printhead supplied with the repair kit to the Bar, Spring.
3. Re-assemble the Bar, Spring to the Printer Frame. Ensure that the Printhead Springs are seated over the heads of the screws securing the tear bar to the printhead



4. Plug in the Printhead, Bar Sensor and the Gap Sensor Cable to the CPU Board per the table below. If you unplugged the Motor cable, plug it into J6 at this time.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINTHEAD CABLE	J5

5. Re-secure the CPU Board. Refer to Procedure RK17949-014 for more details.
6. Install the Upper Housing Assembly. Refer to Procedure RK17949-008/-009 for more details. Also ensure you have re-installed the D-Rings between the Upper and Lower Housings.
7. Install the Battery Pack and media and perform a two-key reset to verify that the Printhead has been properly installed.
8. Perform the Unit Test procedure. Perform a complete unit test to ensure that the sensor calibrations are still correct.



The test procedure can only be performed by certified personnel using special equipment and software.

Replacement Kit RK17949-006- RW 220 Motor

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17949-006 Motor Kit, RW 220 in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

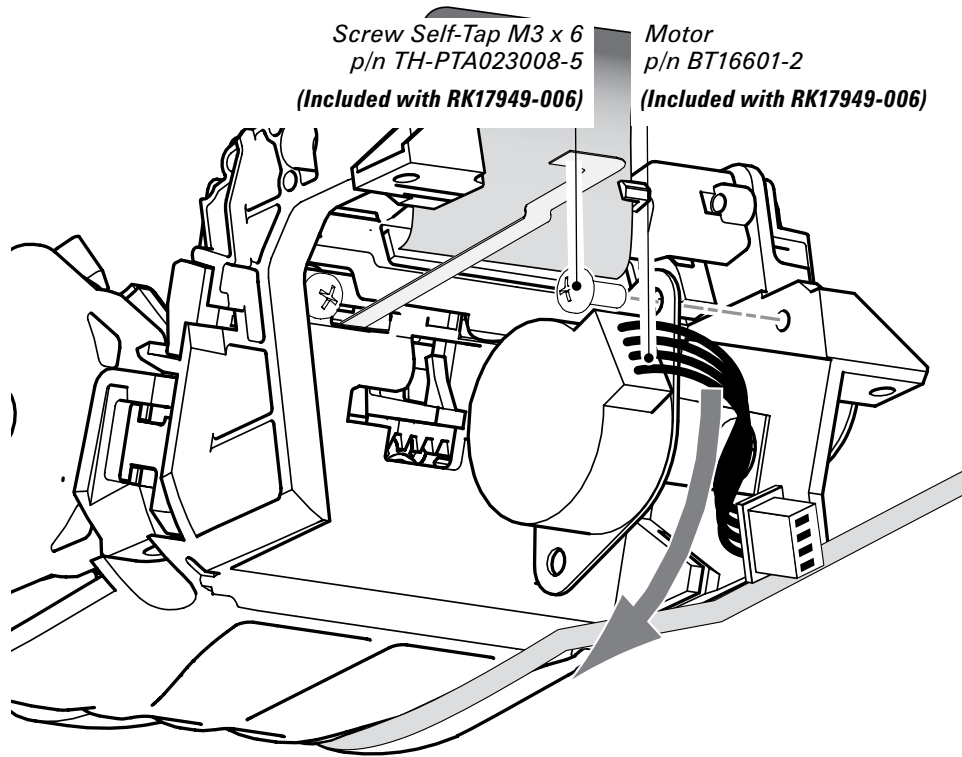
- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Preparation

1. Turn the printer off and remove the battery pack.
2. Remove the Upper Housing. Refer to Procedure RK17949-008/009 for more details. It is not necessary to unplug the Keypad or the LCD from the CPU Board.
3. Unplug the Printhead, Gap and Bar Sensor Cables from the CPU Board.
4. Remove the Mounting Screws from the CPU Board. Pull the CPU Board away from the Printer to allow access to the Motor connector.

Removing the Motor

1. Remove the Printer Frame and Media Cover Assembly from the Lower Housing.
2. Unplug the Motor connector (J6) from the bottom side of the CPU Board
3. Remove the Motor from the Printer Frame by removing its mounting Screw and twisting the motor away from the frame.



Installing the Replacement Motor

1. Insert the Motor's pinion gear through the hole in the Printer Frame. Mesh it with the gears on the side of the Printer frame. Rotate the motor into place on the Printer Frame as shown and secure it with the Screw supplied with the kit .
2. Reassemble the Printer Frame and Media Cover back into the Lower Housing.
3. Secure the Printer Frame to the Lower Housing with (4) Screws as described in RK17949-007. Ensure that none of the sensor cables or the motor cables are pinched between the Printer Assembly and the Bottom Cover Prior to assembly.

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4. Using the Table below as a guide, plug in the cables from the Printer to the CPU Board. Ensure all ZIF connectors for the flat flex cables are locked.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

5. Re-secure the CPU Board. Refer to Procedure RK17949-020 for more details.
6. Assemble the Upper Housing to the Printer, and secure it with the retained hardware. At this time either the "D" rings, or the Carrying strap which was supplied with the printer should be reassembled.
7. Reinstall the Battery Pack and perform a two-key reset to verify that the Printer has been properly reassembled.
8. Perform the Unit Test procedure. Perform a complete unit test to ensure that the sensor calibrations are still correct, and the motor is operating correctly.



The test procedure can only be performed by certified personnel using special equipment and software.

Replacement Kit RK17949-007- RW 220 Printer Frame

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17947-007 Printer Frame Kit, RW 220. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Removing the Printer Frame

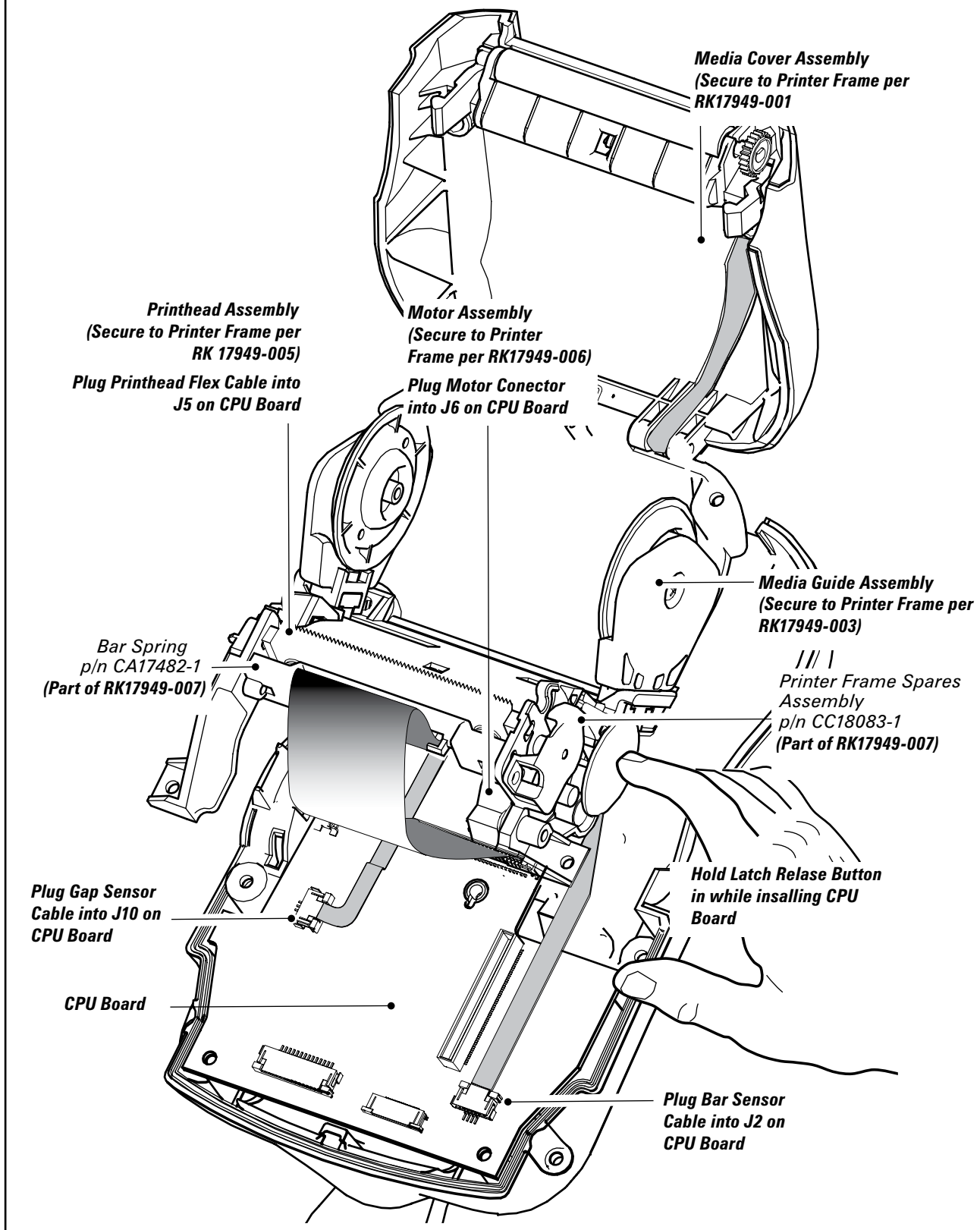
1. Remove the Upper Housing. Refer to Procedure RK17947-008/009 for more details.
2. Remove the CPU Board. Refer to Procedure RK17947-014 for more details.
3. Remove the (4) Screws that secure the Printer Frame to the Lower Housing and remove the Printer Frame and Media Cover.
4. Remove and retain the following from the Printer Frame:
 - Media Cover Assembly (ref. RK17947-001)
 - Media Guide Assembly (ref. RK17947-003)
 - Printhead Assembly (ref. RK17947-005)
 - Motor. (ref. RK 17947-008)

Install The New Printer Frame Assembly

1. Assemble the Media Assembly onto the new Printer Frame: Refer to RK17947-003 for more details on installing the Media Assembly.
2. Assemble the Media Cover Assembly to the Printer Frame. Follow the procedure for reinstalling the Media Cover Assembly per RK17947-001.
 - Ensure the Hinge Pin passes behind the Sensor cable.
 - Press the Sensor cable firmly into its channel in the bottom of the Printer Frame.

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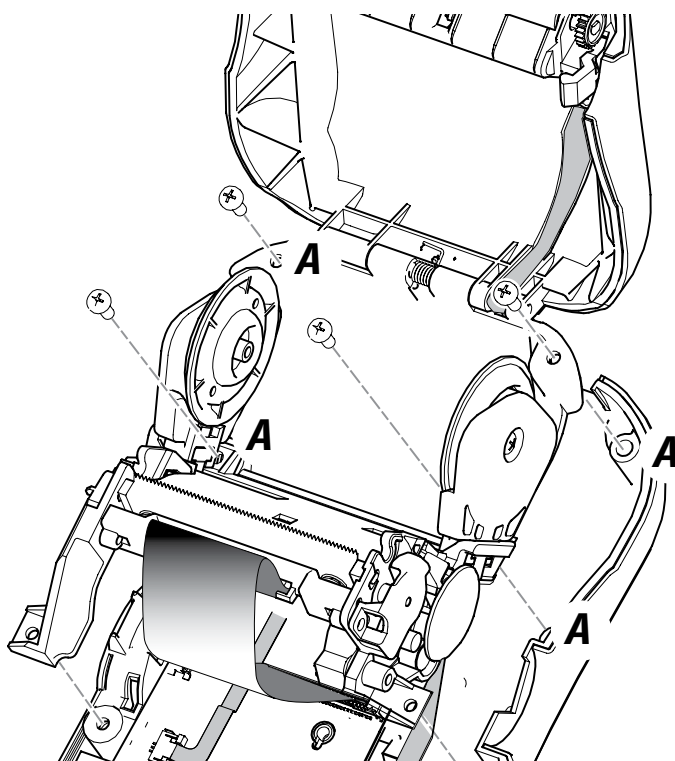
3. Install the Printhead Assembly: Follow the procedure for installing the Printhead Assembly in RK17947-005. Note that a new Bar, Spring is included as part of the Printer Frame Replacement Kit.



4. Using the Table below as a guide, plug in the cables from the Printer to the CPU Board. Ensure all ZIF connectors for the flat flex cables are locked.

CPU CONNECTIONS	
CABLE	CPU CONNECTOR
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5

5. Press the latch release button inward and carefully move the CPU board in towards the printhead as far as it will go. Release the Latc relaeae button. The CPU board should be retained from moving.
5. Install the Printer Frame and Media Cover assembly along with the retained COU Board into the Lower Cover. Ensure that the Motor Cable and Bar Sense Cable will not be pinched between the Printer Frame and the Lower Cover. Do not secure the Printer Frame at this time.
6. Re-secure the CPU Board. Refer to Procedure RK17947-014 for more details.



7. Secure the Printer Frame to the Bottom Cover with (4) screws (marked "A") as shown.
8. Reassemble the Upper Cover and Module Housing: Re-install the Upper Housing per RK17947-008 or RK17949-009. When re-installing the Upper

continued on next page

Housing ensure that the proper Corner Attachment Kit (ref. RK17947-018) is also re-installed.

9. Install the Battery and turn the unit on. Verify that all indicator lights turn on properly.



If you have also replaced the Media Guide Assembly and/or the Printhead Assembly during this procedure you must perform a complete unit test to calibrate the new sensors included with these assemblies.

- 9 Verify proper operation of the printer by performing a two-key reset.



It is always recommended you perform a complete unit test to verify proper operation of all the printer features.

Replacement Kits RK17949-008 & -009- RW 220 Keypad and Housing Kits

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17949-008 & RK17949-009 Keypad and Housing Kits, RW 220 in an RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



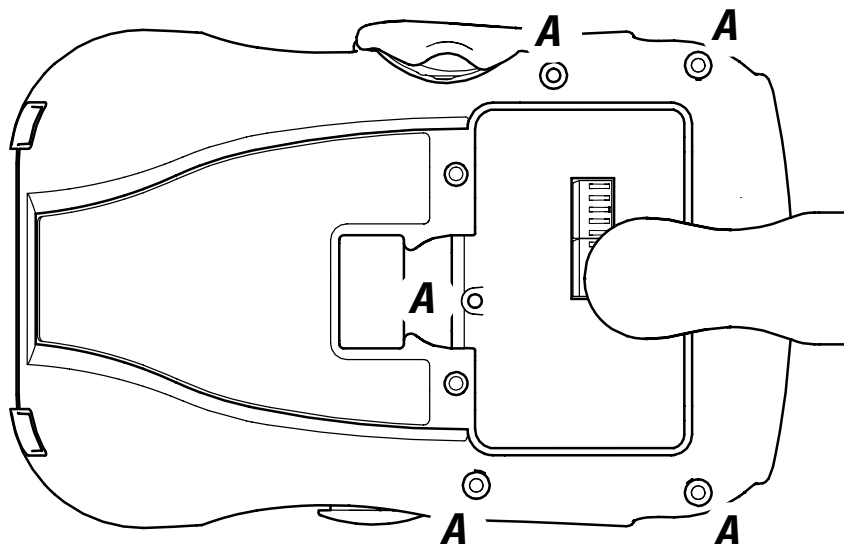
Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

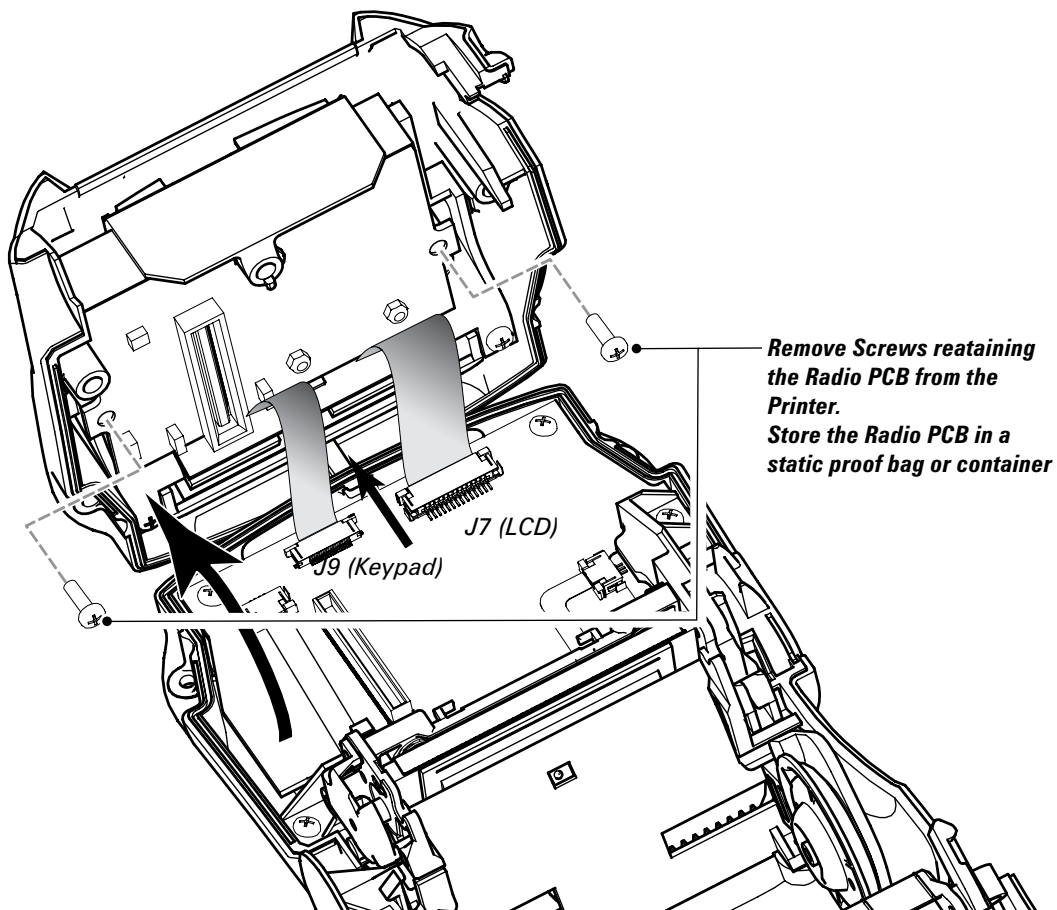
- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

Remove the Upper Housing

1. Remove and retain the (5) screws at locations marked "A" from the bottom of the Printer securing the Keypad and Housing to the printer.
2. Remove and retain the D-rings or the sleeves and carrying strap captured between the Keypad and Housing and the lower housing.



continued on next page



3. Open the Media Cover
- 4.. Pivot the Keypad and Housing forward.
5. Unplug the Keypad and LCD flex cables from the CPU board.

Separate the Assemblies

1. Remove and retain the Radio PCB by removing the (2) screws securing it to the Bracket, Radio. Retain the Screws. Unplug the radio from its antenna.



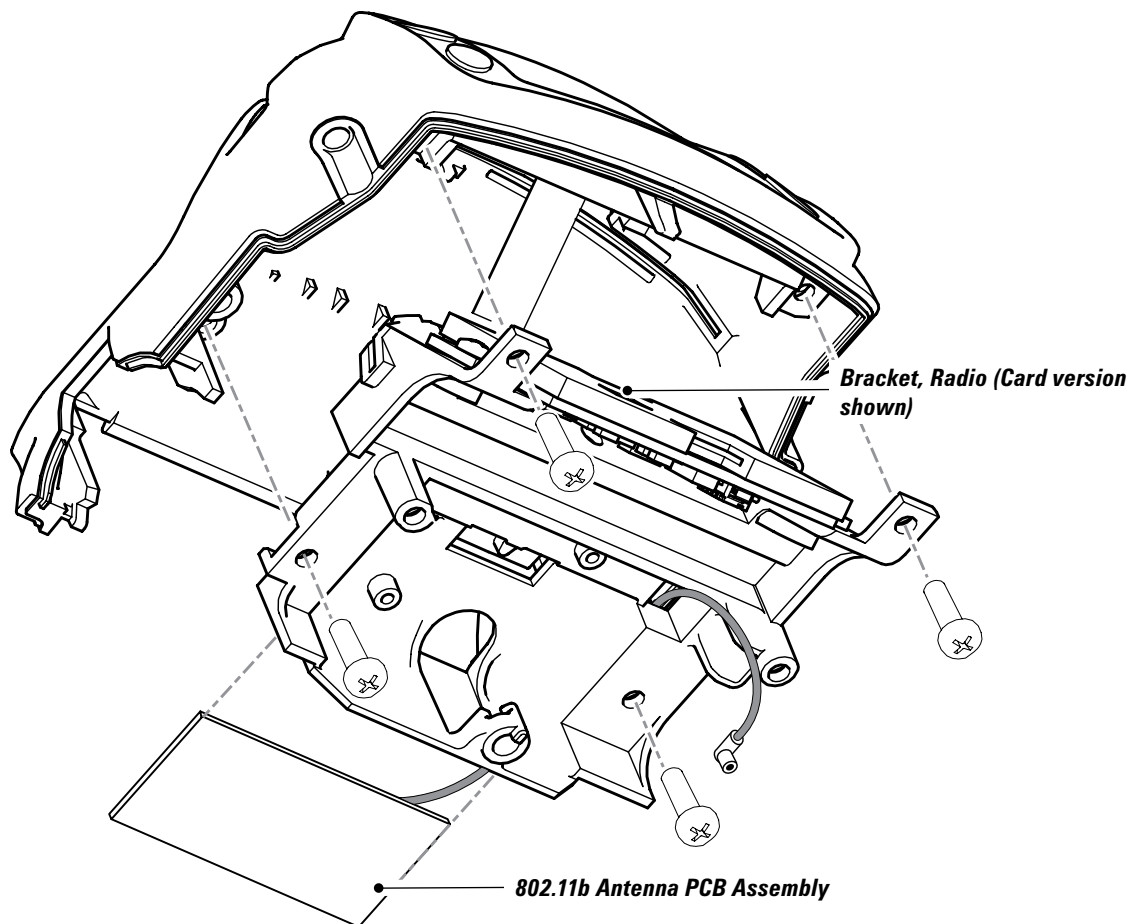
Always store PCB assemblies in static proof bags or containers while performing repair procedures.

2. Remove the Bracket Radio from the Upper Housing. If you have a Printer without a Card Reader, the Bracket is secured by two screws. If your printer has a Card Reader Assembly installed, the Bracket is retained by four screws. Refer to the procedure for RK17494-011 for more details.

Installing the New Upper Housing

1. **For RK17949-009 only:** Re-install the Card Reader in the new Keypad and Housing. Arrange the Keypad and LCD flex circuits so they are between the back of the Card reader assembly and the LCD assembly. Secure the Card Reader with (4) screws.
2. **For RK17949-009 only:** Plug the two cables from the card reader into the retained radio PCB.
3. Install the radio assembly, or the Bracket Radios into the Keypad and Housing. Secure it in place with (2) screws (Non Card reader units) or (4) screws (Card Reader units).

If the printer being repaired has an 802.11b or 802.11g WLAN radio option with an external antenna card, ensure the antenna card is assembled into the

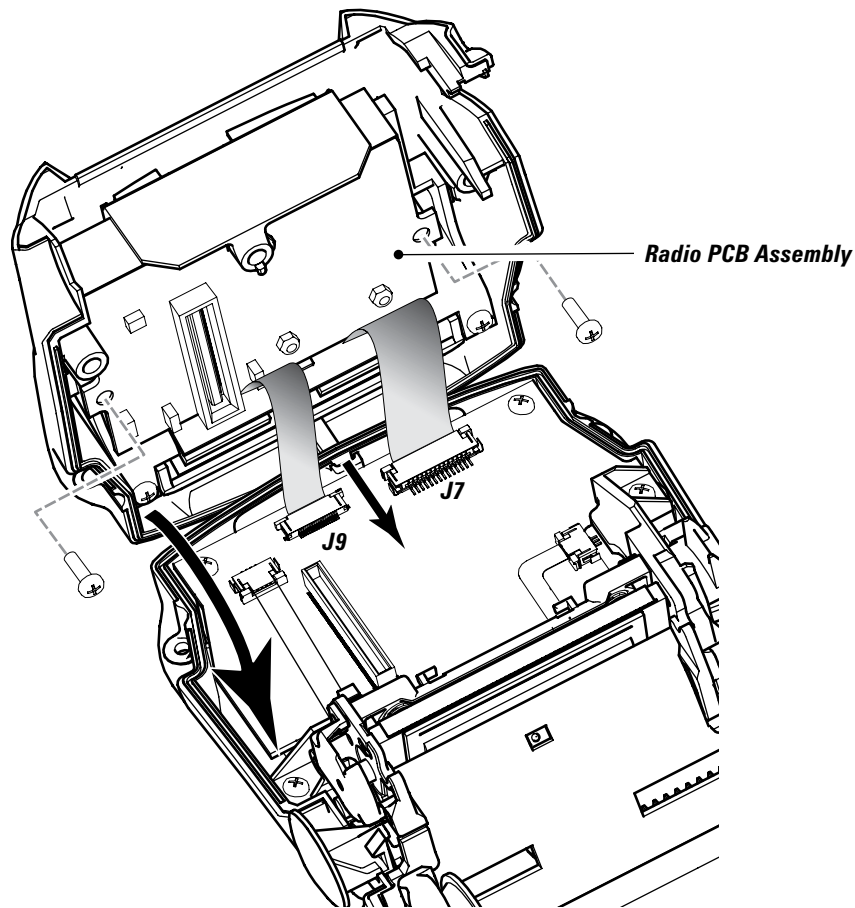


Bracket, Radio prior to assembling it to the upper housing.

If the printer being repaired has a Bluetooth radio option, install the Bluetooth Antenna Card on the side of the Upper Housing per the procedures outlined in RK 17949-013.

4. Plug the coax cable from the antenna into the radio PCB.

continued on next page



5. Reassemble the radio PCB assembly to the Bracket, Radio.
6. Plug the Keypad flex circuit from the Keypad and Housing into J7 on the CPU board. Plug the LCD flex circuit from the Keypad and Housing into J9 on the CPU board. Ensure both connector's locking tabs are secured.
7. Rotate the Keypad and Housing assembly onto the lower housing of the printer.



Ensure that you tuck the LCD and Keypad Flex circuits behind the edge of the CPU Board before securing the two housings.

Align the two housings and press the Keypad and Housing firmly into place. Secure the housings together with the (6) screws you retained when removing the old Keypad and Housing.

8. Re-assemble either the "D" rings or the carrying strap between the upper and lower housings before securing the two housings with the long screws. Refer to the procedure for RK17393-023 for more details.
7. If appropriate, you may install the Product ID label supplied with the kit in the recess on the top of the new Keypad and Housing.

Replacement Kit RK17949-010 - RW 220 Card Reader

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17949-010 Card Reader Kit, RW 220 in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

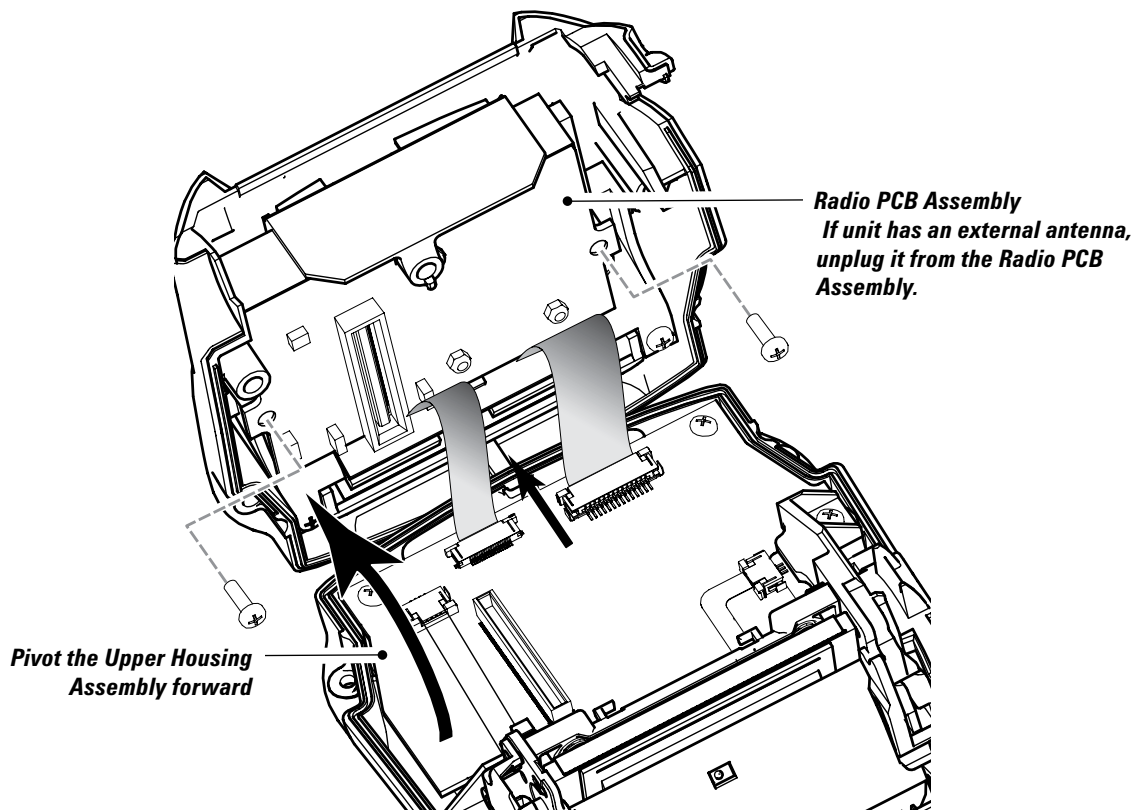
Remove the Upper Housing



Refer to procedure for RK17949-008 & -009 for more details on removing the Keypad and Housing Assembly.

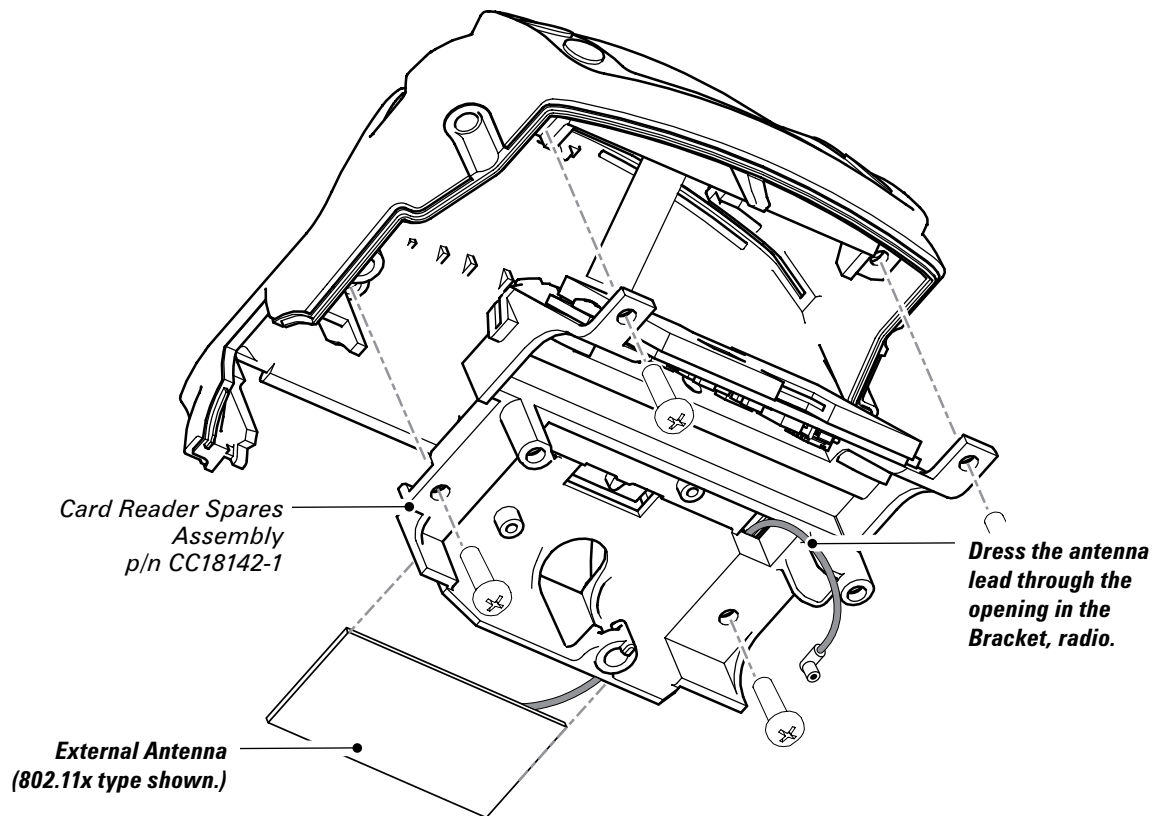
1. Remove and retain the (6) screws securing the Keypad and Housing to the printer.
2. Remove and retain the D-rings or the sleeves and carrying strap captured between the Keypad and Housing and the lower housing.
3. Pivot the Keypad and Housing forward. For ease of assembly, you may elect to unplug the keypad and LCD flex cables from J7 and J9 on the CPU Board.

continued on next page



Remove the Card Reader

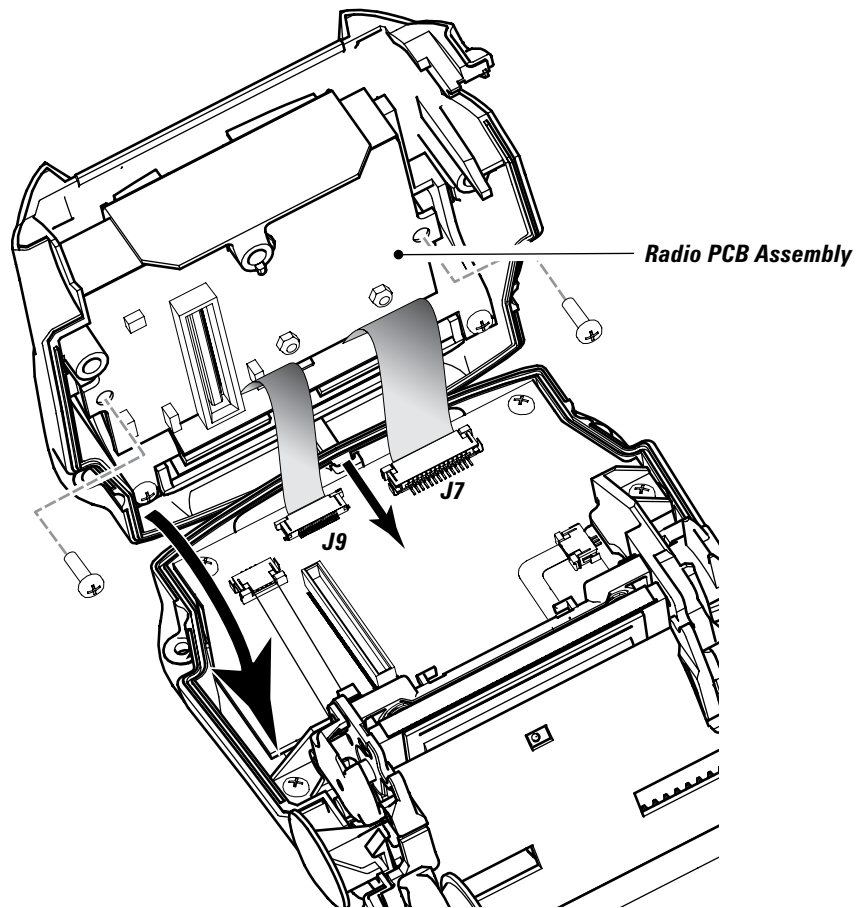
1. Remove the (2) screws holding the Radio Board in place, retaining the hardware. If the unit has an external antenna, unplug the antenna lead from the Radio Board.
2. Remove the (4) screws holding the Card Reader Assembly in place and remove the Card Reader assembly.
3. If the unit has an external antenna, remove the antenna from the Card Reader assembly bracket.



Install the Card Reader

1. If the unit has an external antenna for an 802.11x type radio, slide the Antenna PCB into the well on the top of the Radio Bracket. Dress the antenna lead through the opening in the Radio Bracket.
2. Secure the Card Reader Spares assembly to the Upper Housing with (4) screws.

continued on next page



3. Plug the antenna lead into the Radio PCB Assembly, and re-secure it with (2) screws.

Re-install the Keypad and Housing

1. If necessary, plug the keypad and LCD flex cables into J7 and J9 on the CPU board.
2. Rotate the Keypad and Housing assembly onto the lower housing of the printer.



Ensure that you tuck the LCD and Keypad Flex circuits behind the edge of the CPU Board before securing the two housings.

Align the two housings and press the Keypad and Housing firmly into place. Secure the housings together with the (5) screws you retained when removing the Keypad and Housing.

3. If you removed the "D" rings between the upper and lower housings, re-assemble them before securing the two housings with the long screws. Refer to the procedure for RK17393-023 for more details.

RW 220 Radio Replacement Kits

Installation Instructions

This kit includes the parts and documentation necessary to install the following Replacement Kits in the RW 220 model printer.

Kit p/n	Description
RK17949-011	Radio, 802.11b, ZLAN
RK17949-012	Radio, 802.11b (Compact Flash)
RK17949-013	Radio, Bluetooth Kit
RK17949-015	Radio, 802.11g (non-card)
RK17949-016	Radio, 802.11g (with card)

The installation procedure for all of these kits is substantially the same. Read these instructions thoroughly before attempting to install any of these kits.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



Caution • This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.
- Remove media before installing this Replacement Kit.

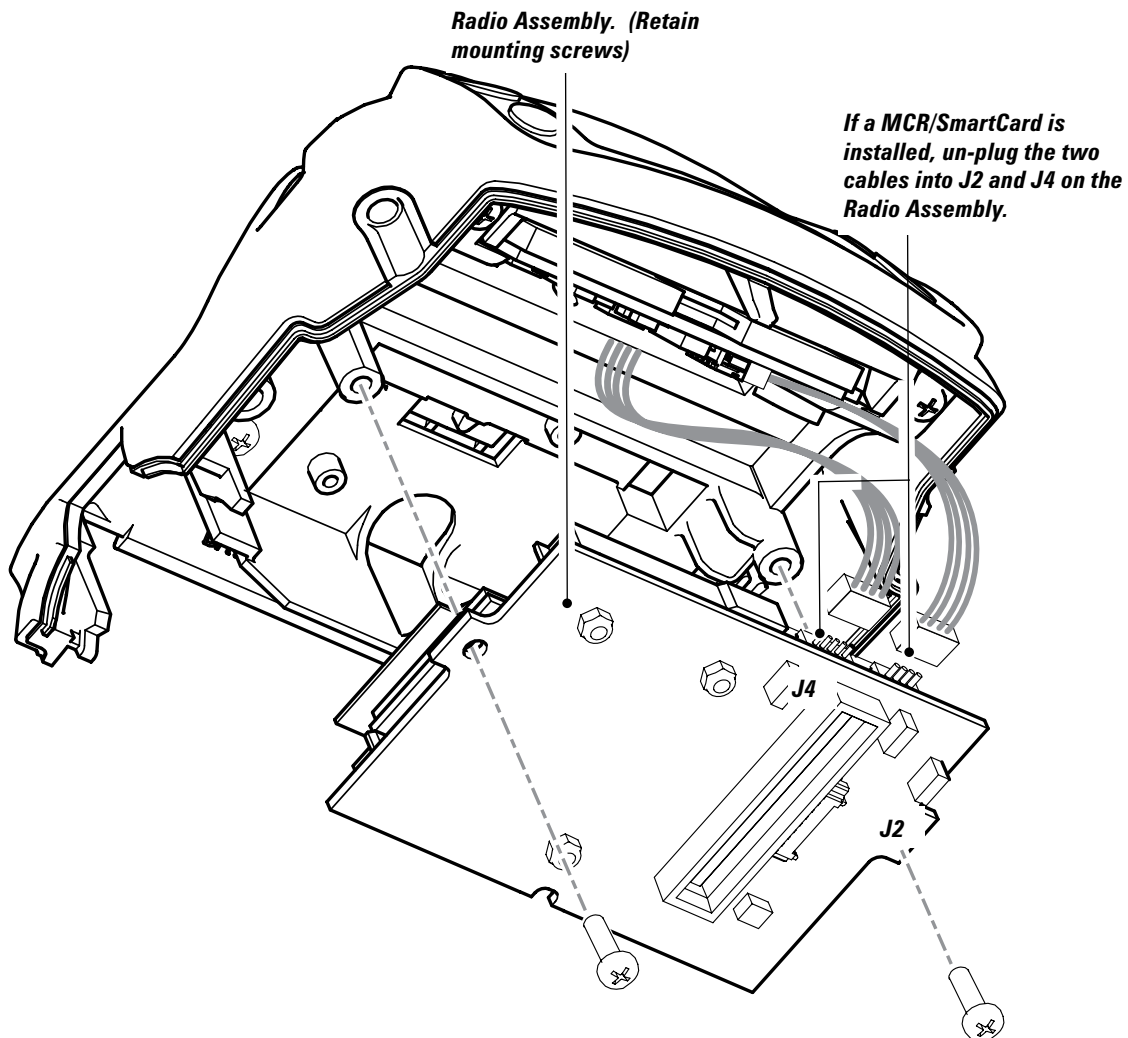
Remove the Upper Housing



Refer to the procedure for repair kits RK17949-008 and -009 for more details on removing the Keypad and Housing Assembly

1. Remove and retain the (6) screws securing the Keypad and Housing to the printer.
2. Remove and retain the D-rings or the sleeves and carrying strap captured between the Keypad and Housing and the lower housing.
3. Pivot the Keypad and Housing forward.
4. Unplug the Keypad and LCD flex cables from the CPU board.

continued on next page



Remove the Radio Assembly



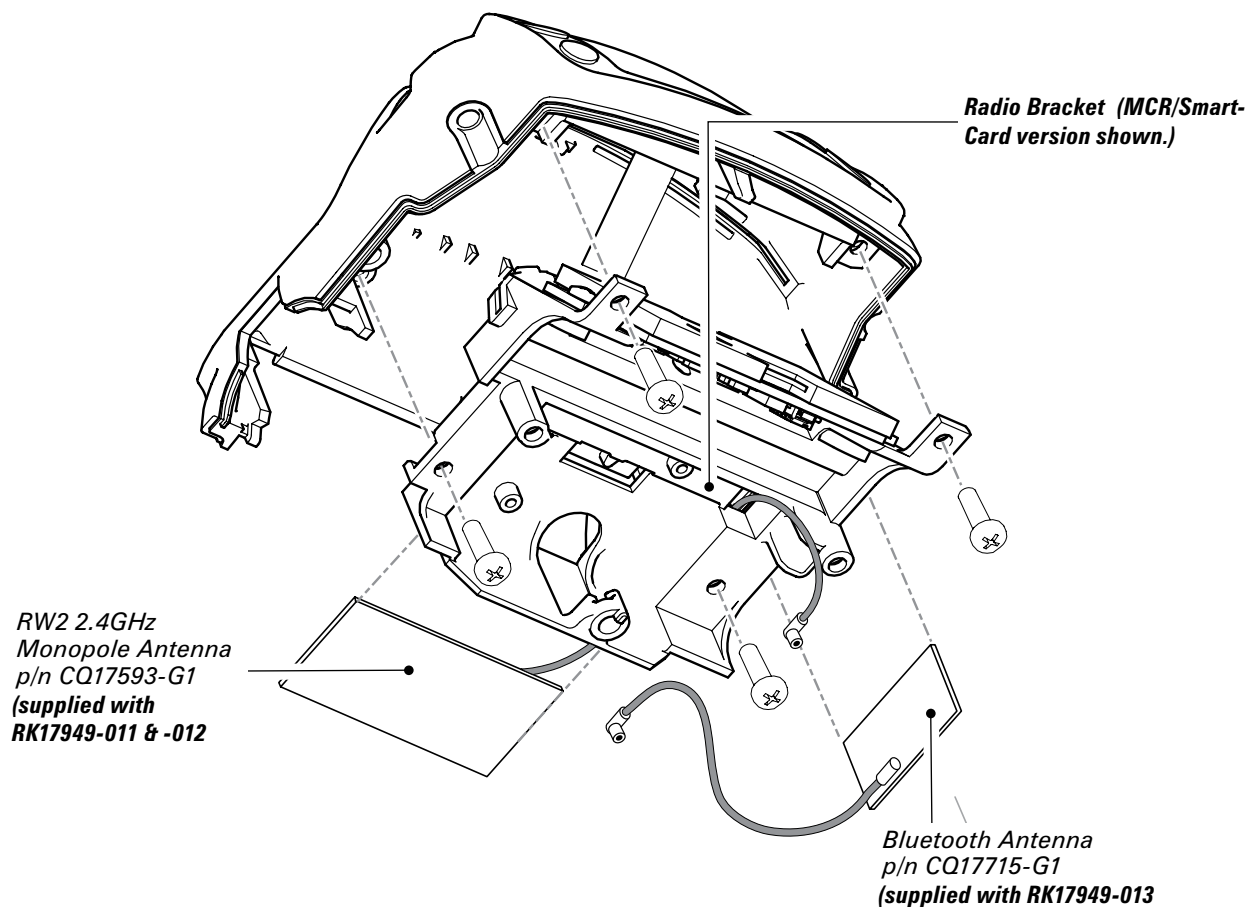
You must replace the Radio Assembly you have removed with one of the same type in order for the printer's regulatory markings to remain in conformance.

1. Remove the Radio PCB from the Radio Bracket by removing and retaining (2) screws.
If your printer has a MCR/SmartCard option installed, unplug the two cables from the Card Reader Assembly to the Radio PCB
2. If your printer has a Bluetooth radio (RK17949-013), detach the antenna card from the upper housing.



Use tweezers and isopropyl alcohol to loosen the Antenna card from the upper housing.

3. Remove the Radio Bracket by removing the screws securing the Bracket to the Upper Housing. The Radio Bracket is secured with (4) screws on Printers with the MCR/SmartCard option and with (2) Screws on printers without that option.
3. If the printer has an 802.11b radio option, remove the antenna card from the pocket in the Radio Bracket.



Installing the Replacement Radio Assembly

1. (RK17949-013 only) Peel the adhesive backing of the Bluetooth Antenna card and secure it to the top housing.



Ensure the attachment area has been thoroughly cleaned with isopropyl alcohol to remove any adhesive residue from the antenna remove in the previous steps.

2. (RK17949-011 and 012 only) Slide the replacement Antenna Card into the pocket on the Radio Bracket, and plug the antenna cable into the antenna card and the radio PCB
3. Install the Radio Bracket into the Keypad and Housing. Secure it in place with the retained screws.
5. Plug the antenna cable into the radio board and secure it to the Radio Bracket with (2) screws.
4. If your printer has a Card Reader option, plug the two cables from the card reader into the J2 and J4 connectors on the replacement Radio Assembly's PCB

continued on next page

Install the Upper Housing



Refer to the procedure for RK17949-008 & -009 for more details on the following steps.

1. Plug the Keypad flex circuit from the Keypad and Housing into J7 on the CPU board. Plug the LCD flex circuit from the Keypad and Housing into J9 on the CPU board. Ensure both connector's locking tabs are secured.
2. Rotate the Keypad and Housing Assembly onto the lower housing of the printer.



Ensure that you tuck the LCD and Keypad Flex circuits behind the edge of the CPU Board before securing the two housings.

- Align the two housings and press the Keypad and Housing firmly into place. Secure the housings together with the (6) screws you retained when removing the Keypad and Housing.
3. Re-assemble either the "D" rings or the carrying strap between the upper and lower housings before securing the two housings with the long screws. Refer to the procedure for RK17393-023 for more details.

Replacement Kit RK17949-014 RW 220 4MB Controller

Installation Instructions

This kit includes the parts and documentation necessary to install the RK17949-014 4 MB Controller Kit in the RW 220 model printer. Read these instructions thoroughly before attempting to install this kit.



The operator must wear a properly grounded ESD strap to perform the following repair procedure.

Reference Materials

UMAN-RWS RW Series Users' Guide

Tools Required

#0 or #1 Phillips Head Screw Driver

Cautions



This installation must be performed only by a qualified service technician.

Unless otherwise specified:

- Always turn the printer off
- Remove the battery before installing any Replacement Kits.

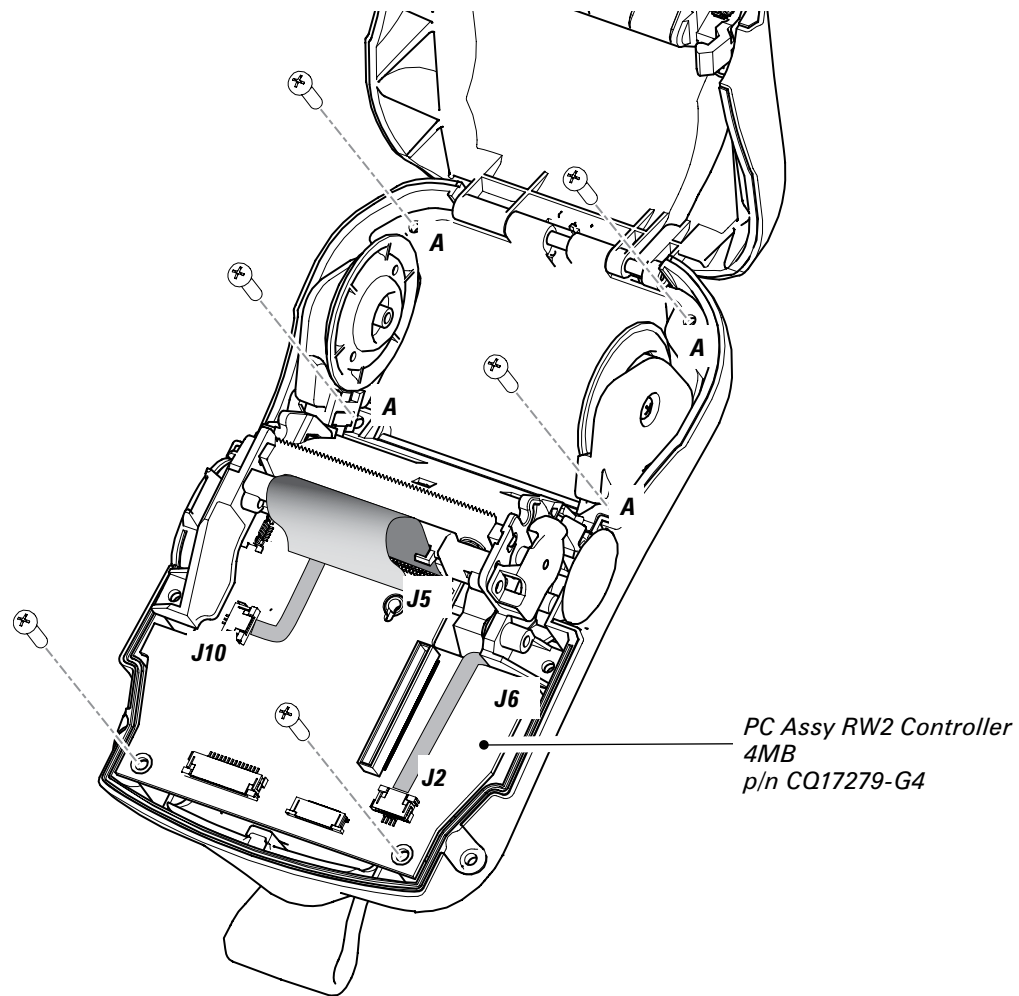
Introduction

You will need to replace the Controller Board if it has been determined that it no longer functions properly. You must re-load the printer's application files and re-calibrate the printer after replacing the Controller Board.



You must have authorization from Zebra to access the application files from the factory.

continued on next page



Removing the Controller Board

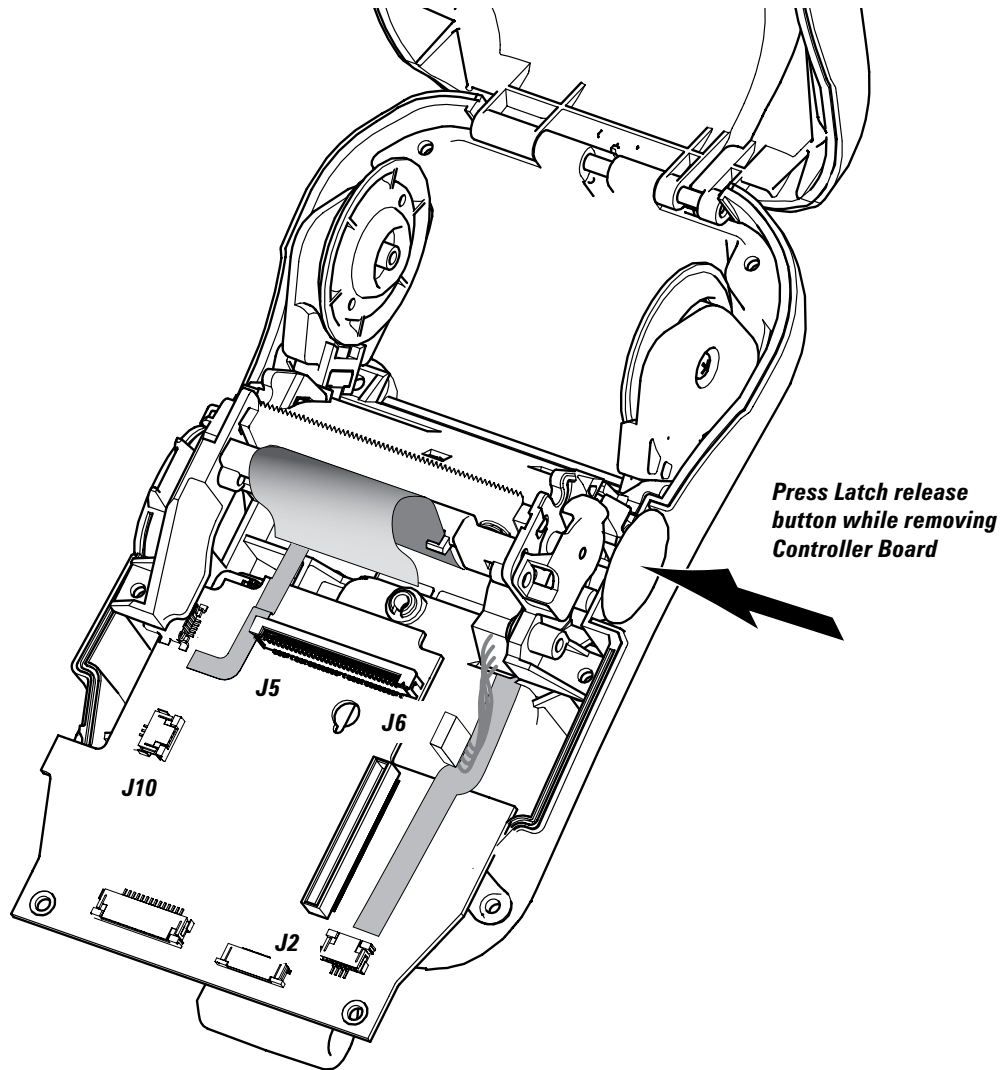
1. Remove the Top Cover. Refer to the procedure for RK17949-008 and -009 for more details.
2. Remove and retain the (4) screws reattaching the Printer Frame Assembly to the Lower Housing, marked "A".
3. Unplug the all cables from the Controller Board. Refer to the table below:

CABLE	CONNECTOR ON CPU
MOTOR CABLE (underside of board)	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5



Ensure you unlatch the flex cable connectors before attempting to unplug them.

4. Remove the (2) Screws securing the Controller board.

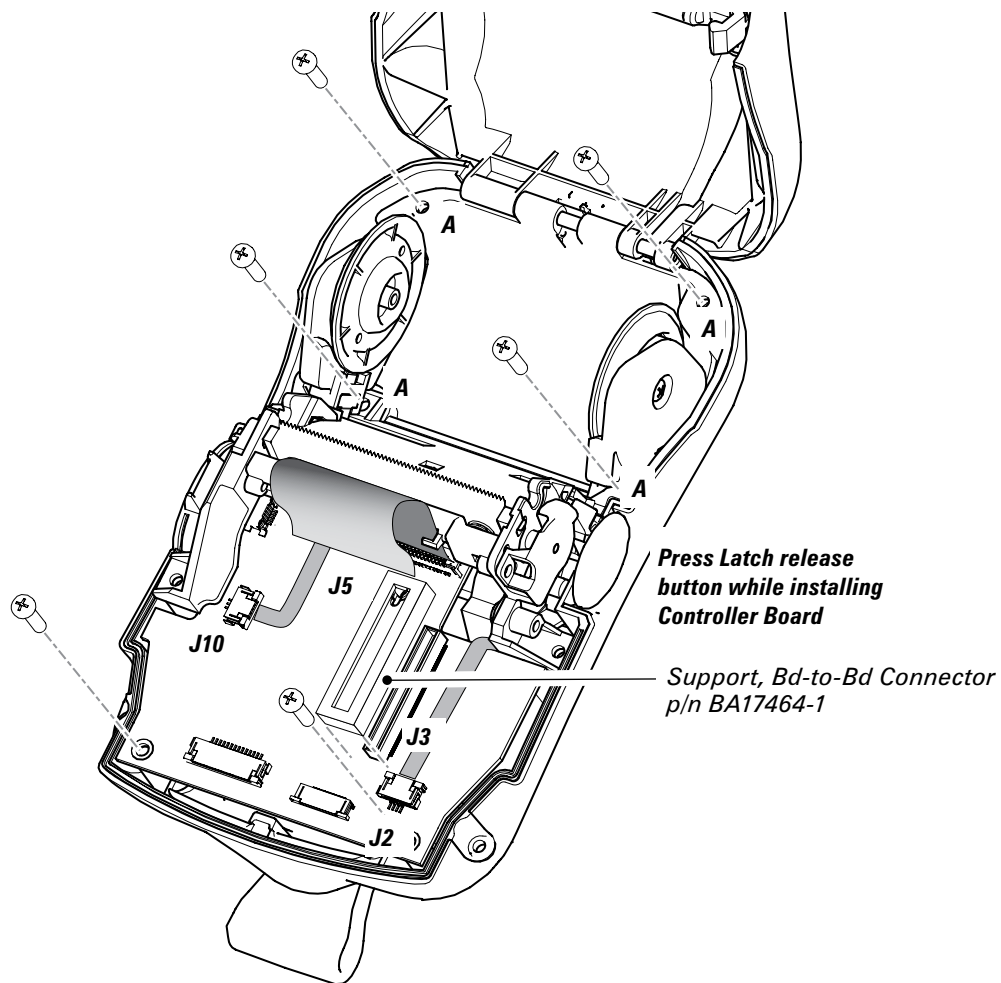


5. Lift the Printer Frame Assembly partially out of the Lower Housing to allow the RS 232 connector to clear the battery compartment in the Lower Housing. Push in the media cover latch release button and pull the Controller Board out from the printer.



Damage could occur if the Latch release button is not pressed in while removing the Controller Board

continued on next page



Installing the Replacement Controller Board

1. Slide the replacement Controller Board into place on the Lower Housing, while pressing and holding the Latch release button.



Damage could occur if the Latch release button is not pressed in while installing the Controller Board

2. Insert the Printhead cable into J5 on the Controller Board, and lock the connector. Install the Motor connector on the bottom of the Board into J6.

Push the Board into place, while pressing and holding media cover latch release button. Connect the remainder of the cables per the table below:

CABLE	CONNECTOR ON CPU
MOTOR CABLE	J6
BAR SENSOR FLEX CABLE	J2
GAP SENSOR FLEX CABLE	J10
PRINthead CABLE	J5



NOTES: *The connector for the motor cable is polarized. It will only fit in one direction. Do not try to force the connector in place.*

Flex cables install in zero insertion force (ZIF) connectors. Pull the connector open, insert the cable, and close the connector to retain the flex cable.

Dress the motor cable away from mounting bosses so they won't get pinched during the next assembly steps.

3. Ensure that the latch release button moves in and out freely.
Secure the CPU Board. Secure the Controller Board in place with the (2) Screws supplied in the kit.
4. Install the Support, Bd-to-Bd Connector over the Module Connector (J3)
5. Re-secure the Printer Frame Assembly to the Lower Housing (4) places at "A" with the retained screws.
6. Install the Upper Housing. Refer to the procedure for kits RK17949-008 and -009 for more details.

Test the Printer

1. Install the Battery Pack.
2. Load the application. You must reload the printer's original application files. These files can be stored either on your local system or can be downloaded from the factory's database.



You must have authorization from Zebra to access the application files from the factory.

3. Calibrate the Sensors. Using the gray and white swatches, follow the on-screen instructions on the unit test and set-up software to properly calibrate the sensors.

Section 3: RW Series Configurator and Repair Kits

Using The Product Configuration Code

Each RW series Printer has a Product Configuration Code (PCC). When ordering replacement parts, use the PCC code to determine the features installed on your printer. Then use the exploded views to determine which kit to order.

Contact Customer Service if you are unsure of the correct part or assembly number.

Refer to “Factory Repair & Parts Ordering Procedure” for further information on ordering parts.

Component Replacement Procedures

Follow the kit replacement procedures as detailed in Section 2. Always replace a component or assembly with the same part number. If you install a part on an RW series printer different from the originally installed component (e.g. a different radio assembly or CPU board), you may have to change the configuration status (PCC code) of the printer. A change in the printer’s configuration status will require an update to the configuration part number on the serial number label. Accurate configuration numbers enable service and technical support personnel to accurately diagnose any problems which may occur with your printer.

If you need to send your printer to the Factory Service Center (FSC), your printer will be updated as necessary to conform with the Product Configuration Code on the serial number label.



Notes: *If the label does not properly identify the printer’s current configuration, any changes you have made to the printer’s configuration may be removed should it be returned to Zebra.*

If you contact Zebra’s technical support staff, you will be asked for your unit’s configuration number. If the configuration number you supply does not correspond to the printer’s actual status, any technical support you receive may not be accurate.

Factory Repair And Parts Ordering Procedure

If you need to return a printer to the factory for repair or upgrade, a **Return Material Authorization (RMA)** must be issued from Repair Services prior to returning any assemblies, PC boards, printers, cables, etc. for repair or replacement. The name, address, contact and phone number of the company that equipment is to be returned to must also be provided. A problem description is also necessary.

When replacing items always refer to the Product Configuration Code to insure the correct part for your specific unit is being ordered. If you are unsure of the correct part, contact Zebra Customer Service with the unit serial number, and the Product Configuration Code to obtain the appropriate part number(s). The serial number label and Product Configuration Code label are either on the bottom or the back of the printer. Refer to Repair Manual Organization page for more information on label location.

Equipment received without return authorization will not be accepted.

Repair Services Contact Information

IN THE USA	IN EUROPE
Zebra Technologies Corporation, LLC	Zebra Technologies Europe, Limited
333 Corporate Woods Parkway Vernon Hills, Illinois 60061-3109 USA	Zebra House The Valley Centre, Gordon Road High Wycombe Buckinghamshire HP13 6EQ, United Kingdom
Phone: +1.847.913.2259	Telephone: +44 1494 768298
Fax: +1.847.913.8766	Fax: +44 1494 768210
e-mail: repair@zebra.com	e-mail: tseurope@zebra.com
RMA requests: repair@zebra.com	RMA requests: ukrma@zebra.com Ask for Customer Support

RW Series Accessories

ORDER NUMBER	DESCRIPTION
AN11209-1	CLEANING PENS, BOX OF 12
AC18177-6	QUAD CHARGER, AMERICAS
AC18177-1	QUAD CHARGER, UK
AC18177-2	QUAD CHARGER, EUROPE
AC18177-3	QUAD CHARGER, AUSTRALIA
AC18177-4	QUAD CHARGER, CHINA
AC18177-7	QUAD CHARGER, JAPAN
AT17696-1	CHARGER WALL LI-ION US/JAP
AT17696-2	CHARGER WALL LI-ION UK
AT17696-3	CHARGER WALL LI-ION EURO
AT17696-4	CHARGER WALL LI-ION AUST
AT17696-17	CHARGER WALL LI-ION ARGENTINA
AT17010-1	USB A TO USB MINI B CABLE
BT11132-1	ADJUSTABLE SHOULDER STRAP
BT16899-1	STRAP HAND CARRY 8" (W/SWIVEL SNAP HOOKS)
CC16614-G1	12VDC MOBILE MOUNT DC/DC LI ION
CC16614-G2	9VDC-30VDC MOBILE MOUNT DC/DC LI ION
CC16614-G3	30VDC-60VDC MOBILE MOUNT DC/DC LI ION
CC16614-G4	ASSY RCLI CHARGER 100-240VAC
CC16614-G9	ASSY RCLI-DC CHARGER 12VDC LIGHTER PLUG
AK18666-1	KIT CABLE USB TO RJ-45

RW Series Product Configuration Code (PCC)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
R	2	—	—	0	—	—	—	0	—	0	—	—	—	—	RW 220 Printer
R	4	—	—	0	—	—	—	0	—	0	—	—	—	—	RW 420 Printer
RAM/FLASH															
		A	—	0	—	—	—	0	—	0	—	—	—	—	8M/4M
CHARACTER SET															
		—	—	0	U	—	—	0	—	0	—	—	—	—	US/Canadian English/Latin 9
		—	—	0	D	—	—	0	—	0	—	—	—	—	Chinese 16x16
		—	—	0	F	—	—	0	—	0	—	—	—	—	Japanese 16 x 16
		—	—	0	G	—	—	0	—	0	—	—	—	—	Japanese 24 x 24
		—	—	0	H	—	—	0	—	0	—	—	—	—	Chinese 16x16 (simplified)
		—	—	0	I	—	—	0	—	0	—	—	—	—	Chinese 24x24 (simplified)
COMMUNICATION-WIRELESS															
		—	—	0	—	0	—	0	—	0	—	—	—	—	Cable/IrDA
		—	—	0	B	—	—	0	—	0	—	—	—	—	Bluetooth
		—	—	0	F	—	—	0	—	0	—	—	—	—	802.11b (ZLAN) WW
		—	—	0	K	—	—	0	—	0	—	—	—	—	802.11g
		—	—	0	L	—	—	0	—	0	—	—	—	—	802.11b/Bluetooth Combo ¹
		—	—	0	M	—	—	0	—	0	—	—	—	—	802.11b (CF) WW
MEDIA HANDLING															
		—	—	0	—	—	A	0	—	0	—	—	—	—	Standard Media
		—	—	0	—	—	C	0	—	0	—	—	—	—	External Media Capacity (RW 4 only)
READERS															
		—	—	0	—	—	—	0	0	0	—	—	—	—	None
		—	—	0	—	—	—	0	1	0	—	—	—	—	Mag Card/Smartcard Readers
COUNTRY CODE															
		—	—	0	—	—	—	0	—	0	N	—	—	—	North America (includes Mexico, Australia)
		—	—	0	—	—	—	0	—	0	L	—	—	—	Latin America (Brazil, Argentina)
		—	—	0	—	—	—	0	—	0	E	—	—	—	EU/EFTA
		—	—	0	—	—	—	0	—	0	A	—	—	—	Asia1 (Japan, Taiwan, Korea)
		—	—	0	—	—	—	0	—	0	B	—	—	—	Asia2 (China, Singapore, Malaysia)
SYSTEM SETTING OPTIONS															
		—	—	0	—	—	—	0	—	0	—	—	0	0	Default values: 19.2 K Baud; 120 sec. Time out;DTR Power Off enabled;
		—	—	0	—	—	—	0	—	0	—	—	n	n	Handshake hardware (CTS/RTS);Zebra Label Set
		—	—	0	—	—	—	0	—	0	—	—	n	n	Customer Specific Options

1. This option valid only for RW 420 with Country Codes "N", "E" and "A".

Each RW series Mobile Printer has its Product Configuration Code (PCC) printed on the bottom of the unit. Use this chart to determine the features installed on your printer, then use the Illustrated Parts List on the following pages to determine which replacement kits must be ordered.

PCC Example

PCC number R4A-0UBC010N-00 results in a RW 420 with the following:

- CPU Board with 8M of RAM and 4M of Flash Memory;
- US/Canadian English/Latin 9 fonts;
- Bluetooth wireless module;
- Capability of using media from an external source;

- Mag Card and SmartCard reader installed,
- Meets North American safety and emissions regulations
- Default system settings

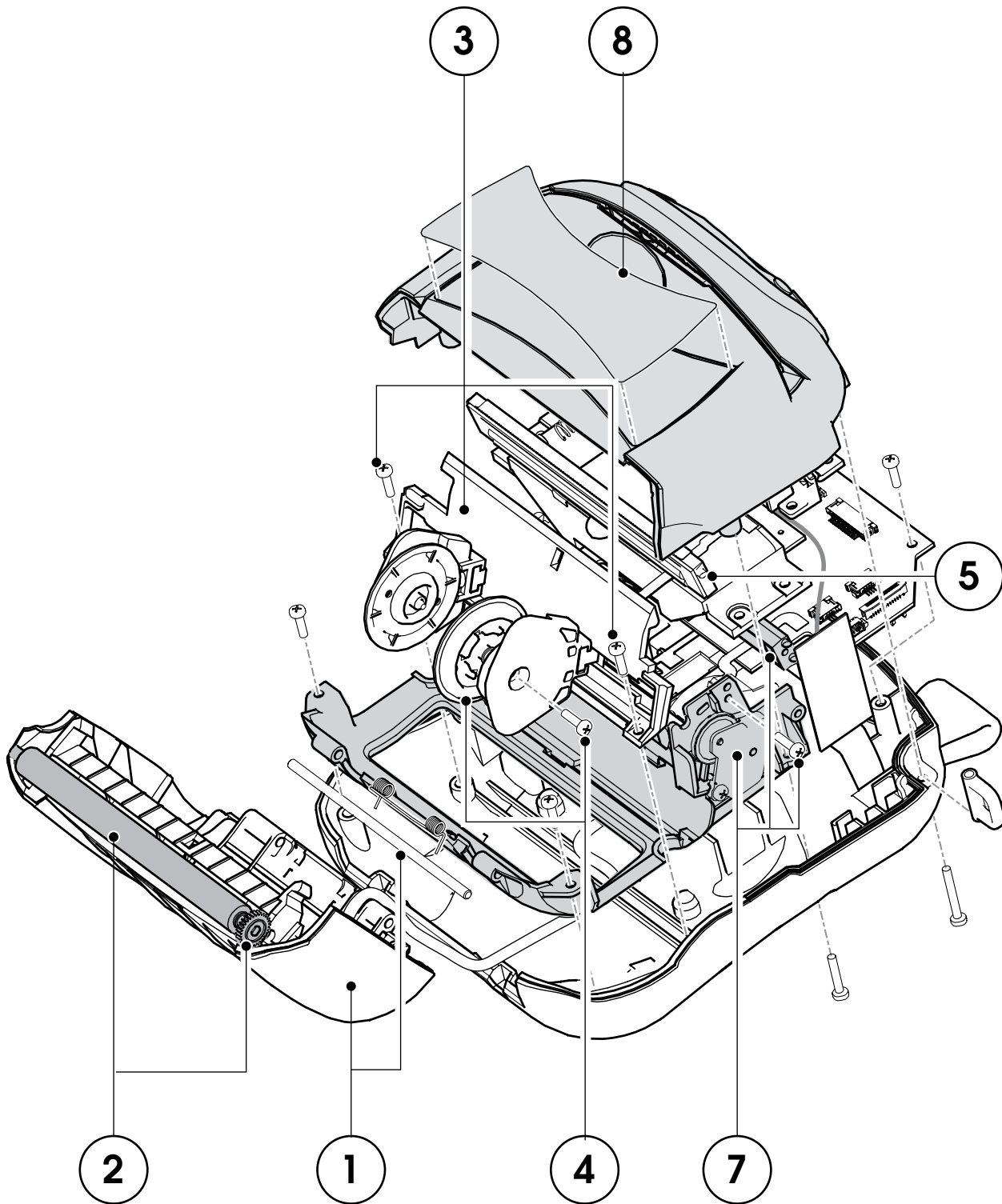
RW 420 Replacement Kits

ITEM	PART #	DESCRIPTION
1	RK17393-001	MEDIA COVER KIT, RW 420
2	AK17393-002	PLATEN/GEAR KIT, LINERED RW 420
	AK17393-028	KIT RPR RW4 LNRS PLATEN RLR
3	RK17393-003	KIT RPR RW4 MEDIA GUIDE
	RK18471-01	KIT RPR RW4 MEDIA GUIDE W/BELT
4	RK17393-004	MEDIA DISK KIT RW SERIES
5	RK17393-005	PRINthead KIT, RW 420
6	RK17393-006	MOTOR KIT, RW 420
7	RK17393-007	PRINTER FRAME KIT, RW 420
8	RK17393-008	KEYPAD/HSG AND LCD (NON CARD) KIT, RW 420
	RK18280-1	KIT RPR RW4 KYPD/HSG/LCD (W/CARD)
9	RK18241-1	KIT RPR RW4 CARD READER
10	RK17393-012	DOCKING PLUG KIT, RW 420
11	RK18242-1	KIT RPR RW4 RADIO 802.11B CF
	RK17393-029	KIT REPAIR RW4 802.11G
	RK17393-015	RADIO 802.11B (ZEBRA VALUE RADIO)
	RK17393-019	RADIO BLUETOOTH KIT, RW 420
12	RK17393-020	CONTROLLER 4M KIT, RW 420
13	AK17393-022	KIT RPR RW SER BELT CLIP
14	RK17393-023	KIT RPR RW SER CORNER ATTACHMENT
15	RK17393-024	KIT RPR RW SER CONNECTOR DOOR

RW 420 Accessory Kits

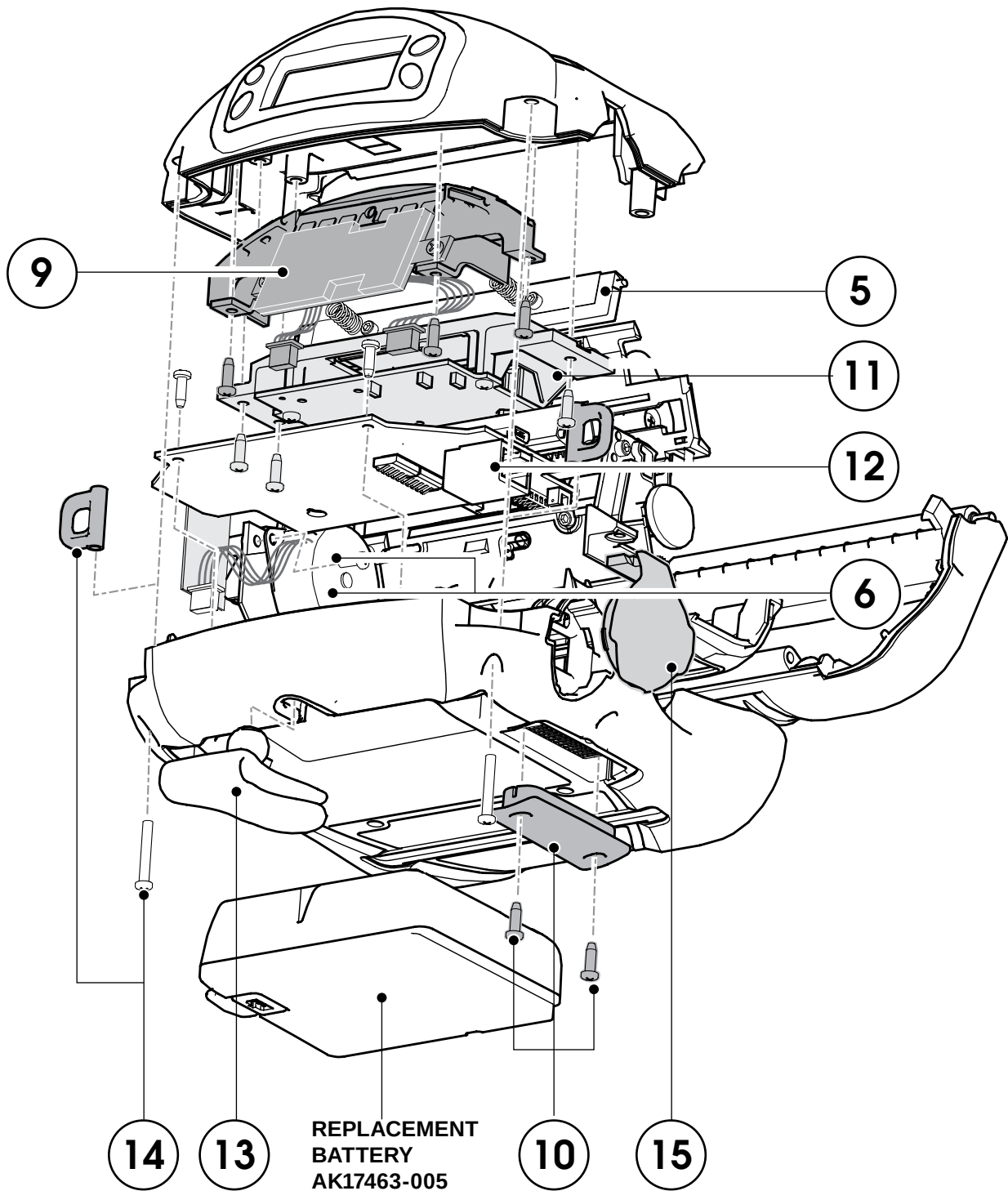
PART NUMBER	DESCRIPTION
AK17463-001	SOFT CASE KIT, RW 420
AK17463-002	RAM MOUNT KIT, RW 420
AK18178-1	CRADLE KIT W/ LIGHTER PLUG, RW 420
AK18178-2	CRADLE KIT, RW 420
AK17463-005	BATTERY, REPLACEMENT KIT 4-CELL, RW 420
AK17463-006	DOCKING STATION POWER CABLE
AK17463-007	DOCKING STATION LIGHTER PLUG CABLE
AK17463-008	MOD PLUG TO 9-PIN DB PC CABLE
AK17463-010	RW TO SYMBOL 8000 CABLE
AK17463-011	TWIST LOCK 10 P MOD CABLE
AK17463-013	RW TO CX TERMINAL CABLE
AK17463-014	TWIST LOCK 10 P MOD CABLE
AK17463-015	MOLD TWIST LOCK DNLD SHIELD CABLE
AK18661-1	KIT HOLSTER RW420 W/SNAPS

RW 420 Replacement Kits- Unit Exploded View 1

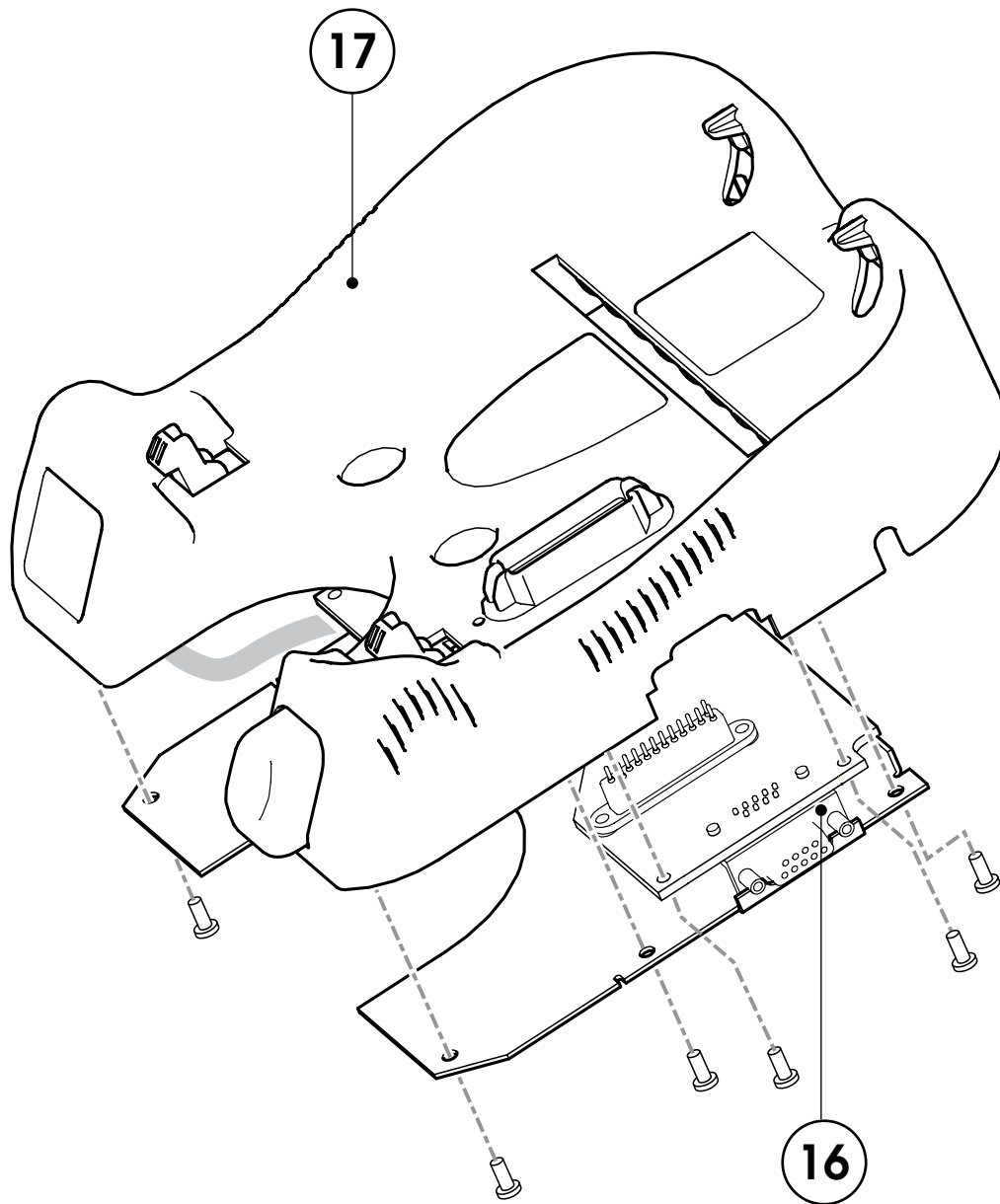


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RW 420 Replacement Kits- Unit Exploded View 2



RW 420 Vehicle Cradle Replacement Kits



ITEM	PART #	DESCRIPTION
16	RK18243-1	KIT RPR RW4 VEHICLE CRADLE PCB
17	RK17393-026	DOCKING STATION HOUSING ASSY KIT, RW 420

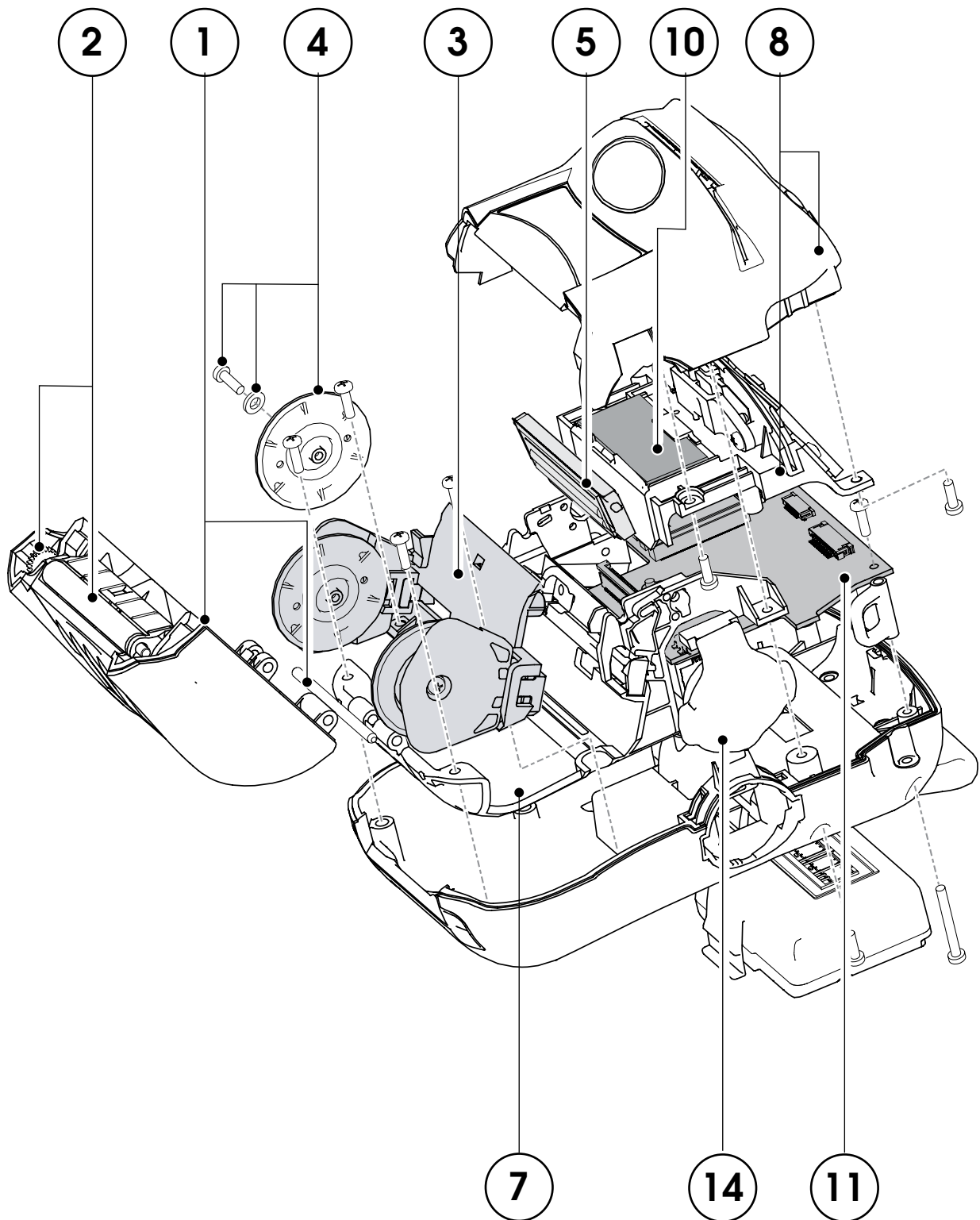
RW 220 Accessory Kits

PART NUMBER	DESCRIPTION
AK18026-001	SOFT CASE KIT, RW 220
AK17463-018	RAM MOUNT KIT, RW 220
AK17463-019	KIT ACC RW2 VEH CRADLE
AK17463-008	MOD PLUG TO 9-PIN DB PC CABLE
AK17463-010	RW TO SYMBOL 8000 CABLE
AK17463-011	TWIST LOCK 10 P MOD CABLE
AK17463-013	RW TO CX TERMINAL CABLE
AK17463-014	TWIST LOCK 10 P MOD CABLE
AK17463-015	MOLD TWIST LOCK DNLD SHIELD CABLE

RW 220 Replacement Kits

ITEM	PART #	DESCRIPTION
1	RK17949-001	KIT RPR RW2 MEDIA COVER
2	RK17949-002	KIT RPR RW2 PLATEN/GEAR LNR
3	RK17949-003	KIT RPR RW2 MEDIA GUIDE
4	RK17393-004	KIT RPR RW SERIES MEDIA DISK
5	RK17949-005	KIT RPR RW2 PRINthead
6	RK17949-006	KIT RPR RW2 MOTOR
7	RK17949-007	KIT RPR RW2 PRINTER FRAME
8	RK17949-008	KIT RPR RW2 KYPD HSG LCD
	RK17949-009	KIT RPR RW2 KYPD HSG LCD W/CRD
9	RK17949-010	KIT RPR RW2 CARD READER
10	RK17949-011	KIT RPR RW2 802.11B ZLAN
	RK17949-012	KIT RPR RW2 802.11B CF
	RK17949-013	KIT RPR RW2 BLUETOOTH
	RK17949-015	KIT RPR RW2 802.11GEM(K) NCARD
	RK17949-016	KIT REPAIR RW2 802.11G W/CARD
11	RK17949-014	KIT RPR RW2 CONTROLLER 4M
12	AK17393-022	KIT RPR RW SER BELT CLIP
13	RK17393-023	KIT RPR RW SER COR ATT
14	RK17393-024	KIT RPR RW SER CONN DOOR
15	AK18026-002	KIT ACC BATTERY,RW220

RW 220 Replacement Kits- Unit Exploded View 1



RW 220 Replacement Kits- Unit Exploded View 2

